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THE  
KINDERGARTEN  
BUILDING  
GIFTS

BY

ELIZABETH HARRISON,  
CO-PRINCIPAL OF THE CHICAGO KINDERGARTEN COLLEGE,

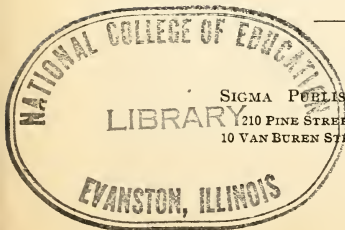
AND

BELLE WOODSON,  
INSTRUCTOR IN GIFTS AND OCCUPATIONS OF THE CHICAGO  
KINDERGARTEN COLLEGE.

---

*"The soul is form and doth the body make."*  
—Shakespear.

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DEDICATED  
TO  
The Graduating Class of 1902  
OF  
The Chicago Kindergarten College.

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IN STORYLAND.

TWO CHILDREN OF THE FOOTHILLS.

SOME SILENT TEACHERS (*in preparation*).

# TABLE OF CONTENTS.

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	PAGE
Introduction,	
Chapter I. THE FIRST GIFT,	1
The Child's Simplest Plaything.	
Chapter II. THE SECOND GIFT,	30
The Three Fundamental Forms of Creation.	
Chapter III. THE THIRD GIFT,	74
A Plaything which helps the Child to Transform without Destroying.	
Chapter IV. THE FOURTH GIFT,	108
A Plaything which aids the Child's Building Instinct.	
Chapter V. THE FIFTH GIFT,	130
A Plaything which Emphasizes Free- dom under the Law.	
Chapter VI. THE SIXTH GIFT,	171
The Doorway to the World of Archi- tecture.	
Chapter VII. THE DIVIDED CYLINDER,	191
A Plaything Emphasizing the Curve in Building.	
Chapter VIII. THE CURVILINEAR GIFT,	200
The Plaything which gives the Curved Line of Grace and the Straight Line of Strength.	





## INTRODUCTION.

To refuse to pass judgment upon a subject not yet understood is one of the surest evidences of the cultured mind. It is, therefore, with a feeling of confidence that the Kindèrgartners ask the rest of the educational world to first understand Froebel's aim in creating the Kindergarten Play-Gifts, and then, to examine these same Play-Gifts and see whether or not they fulfill the purpose for which they were made.

No one can easily comprehend Froebel without understanding his idea of the meaning of life. Over and over again he has stated that the chief end of education should be to bring the human soul to a consciousness of his *oneness with the Divine Source of all things*. This feeling of oneness with God was to him the greatest possible inspiration that could be given to a child to awaken it to a faith in itself.

All that modern Sociology is beginning to demand as the true ethical basis of the institutional life he believed would follow when the world understood the brotherhood of man.

All that modern education is beginning to demand concerning the development of the individuality of each child, he believed would then be readily conceded.

His Kindergarten Games were devised for no other purpose than to bring the child, through joyous, child-like, dramatic play, to the fundamental relationships of family life, of society, of the trade-world, and to a more limited extent, to a dawning consciousness of the meaning of the state and church. It is true that they are played in time to music and that the words are usually sung, thereby exercising the child in rhythmic and healthful movement, and giving the needed physical activity and diversion of mind, but these things were a means to an end.

It is equally true that his so-called Gifts and Occupations (the play-tools which he puts into the hands of the Kindergarten), were not created by him merely that the child might the sooner master the material world about him by becoming familiar with the fundamental properties of the matter through play with them; as, for example, to gain lasting sense-impressions by means of sharp contrast of large and small forms, curved and flat surfaces, long and short lines, near and far points, fixed and transformable shapes, bright and soft colors, rough and smooth textures, etc., etc.; nor was it his purpose simply to give the child objects by means of which he might the more readily classify the myriads of sensations that pour in upon his young mind. It is

true that the few forms which are seen in the Kindergarten Gifts are the geometric types that underlie all forms of creation, and therefore are most helpful in the rational organization of what to the child is the chaos of the outside world, but to Froebel this was the means to an end. This end was to lead the young heart, through thus discerning the organized nature of form, to feel that underneath all forms lay one form, that one law governed all creation, that all were but varying expressions or utterances of *One Mind*.

The above is a short and inadequate statement of the world-view of one of the most truly religious minds of modern times.



## CHAPTER I.

### THE FIRST GIFT.

---

(This Gift consists of six worsted balls of rainbow colors, to each of which is attached a string of a color corresponding to the ball).

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The ball is a plaything whose possibilities unfold in a most surprising manner to one who has not closely observed the many ways in which it is used, not only as a play-mate by the child, but, also, as an instrument of recreation and utility by the adult. Froebel shows us, distinctly, how it may be used from the first infantile grasping of an outside object, on through the periods of infancy and childhood, until it develops into the well organized games of the Kindergarten, both the "Movement Plays" and the dramatic games, the latter reproducing in miniature the fundamental activities of the Race. One needs only to mention marbles, croquet, tennis, basket-ball, base-ball and foot-ball to recall some of the many ways in which the ball brings strength and recreation to the youth and full grown man.

**TWO PERIODS  
OF CHILDHOOD.**

In the study of the First Gift the songs and games intended for the *nursery* must be considered as distinct and separate from those which are intended for the more advanced stage, the *Kindergarten*, else great confusion and consequent loss of time will be the result. Although there is no sharply defined line between the two, the games of the nursery gradually giving place to those of the Kindergarten, still the mistake is some times made of prolonging the nursery games when the child is ready for the more advanced use of the Gift.

It may be safely stated that the child who has not had the training of the senses and muscles in the nursery comes to the Kindergarten not only with slower powers of perception, but also with less readiness of thought—he is, in fact, less alive. This does not mean that the trained child is more nervous or more restless. The purpose of organized play is to produce conscious mastery, and hence the calm control of the nerves. Herbert Spencer has said that confidence is the remembrance of former successes, and it has been proved that out of the baby-achievement with the ball is born confidence and a willingness to attempt new achievements which other young children rarely ever manifest. This is a self-evident fact that any Kindergarten will affirm if she is so fortunate as to have had in her Kindergarten children who have been previously trained in the nursery.

**NURSERY  
PLAYS.**

With these preliminary remarks, let us now turn to some of the nursery plays which Froebel has given in his chapter on *The Ball* in "The Pedagogics of the Kindergarten." (These plays are admirably carried out in the Kraus-Boelte "Kindergarten Guide Book".) The Mother, or nurse, first places in the baby's hand the soft worsted ball, usually a red one, as the color red soonest attracts the child. The tiny fingers involuntarily grasp it, curving round it, and thus the young child gains the first faint sensations of some new object. The value of a ball as a first play-thing, is that the child gets a dim consciousness of the object *as a whole*, that is, if the ball is small enough for him to inclose it entirely in his hand.\* The Mother then gently draws the ball from the infant's hand by means of the string which is attached to it. Again it is placed in his hand and again withdrawn. When this sensation of possession and loss has been repeated a number of times the infant begins to show that he is conscious of the change in his sensations by following feebly with his eyes the receding ball. Froebel maintains that this is a beginning of consciousness of *self* and *non-self*. This distinction is the basis of all after education. Simple as is this little play with the almost unconscious infant, out of it grow many and varied exercises. The embryo perceptions of *Matter, Space and Time* necessarily unfold from it; just

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\*See Dr. Snider's Psychology of Froebel's Play Gifts, page 11.

as the baby's first answering smile is the dawning of the *social instinct* which finally is to grow into the consciousness of the rights and duties of *family, society and state*.

**ORGANIZING  
OF SPACE.**

As the child's fingers strengthen in his efforts to hold the ball the Mother begins to sing softly: "Here-There", "Here-There", being careful to accompany the action with the appropriate word. Of course, the infant does not yet comprehend the meaning of the words "Here-There", "Here-There", but the difference in the sounds of the words and the difference in the tones of the Mother's voice which accompanies the change of sensation, produced by contact with the ball and the withdrawing of that contact, emphasize the words. Thus, long before speech is possible, such seemingly insignificant games as this are the first awakening of the child to the vast task of organization of space, for the "Here-There" begins to define *position* and to establish *location*, without which all future observation of space-filling objects would be hazy and inadequate. The inner and the outer world are now being created anew by the child from the apparent chaos into which he comes at birth; and conscious life takes a tiny step forward.

One needs no help to see the long vista down which the young soul has yet to travel, with an ever-growing consciousness of the distinctions between the inner and the outer world, until the true and



beautiful significance of life has become a reality by the subordination of the outer to the inner.

**ORGANIZING  
OF TIME.** But we must not digress too much, suggestive as are all of these simple

but pregnant plays. Soon the words of the song may be changed from "Here-There" to "Now-Then", "Now-Then", a slight emphasis is placed on one or the other of the two words and the measured beat of *Time* has begun within the dim world of the childish mind! The rhythmic measurement of Time is in all life, from the regular beat of the infant's own heart, on, through all the activities of Man, until his soul pours itself forth in worshipful anthem or solemn dirge, and great symphonies lift vast audiences into noble and exalted moods. Again rhythm is found in all Nature, from the silent swelling of the life force within the tiniest bud, on through the mystic "dance of the seasons." Time—Time—Time—orders all things; we feel it in the measured tread of the slow marching centuries, and catch it in the song of the morning stars as they whirl in rhythmic measurement of time through the universe! Do these expressions sound extravagant? It is because we have let our hearts grow dull that we do not feel this pulsing life in all created things. To discern the significance of the apparently insignificant beginnings of all things, we have but to point to the smallest acorn and call upon the imagination to build out of it the mighty century-living oak, or we have but to gaze

upon the Grand Canyon of the Colorado and realize that a small pebble could have changed the course of its first tiny rill and thereby have placed its yawning chasms miles away from their present impregnable position. All Nature teaches us this sublime lesson and the whole world kneels before the cradle of infancy in which lies the starting point, the germ of all after life.

**OTHER  
FUNDAMENTAL  
CONCEPTS.**

The words of the baby song which accompany the coming and going of the ball may be changed to "Near-Far", "Near-Far", the voice of the Mother expressing the change by the quick and slow pronouncing of the words, or the words may be changed to "Up-Down", "High-Low", "Right-Left", "Round-and-Round", etc. Thus slowly and gently, by many repetitions, may be sung sweetly into the child's awakening mind *the fundamental concepts* by means of which all after organizations of form, color, position, direction, size and number are to be based, as well as all the essential movements in space.

As soon as the child is old enough to notice the objects of every day life about him, these little songs may take on a more concrete form and what was before mere position, direction or motion in general, now helps to interpret some particular object as: "Birdie flies", "Kittie runs", "Clock ticks" or "Bell rings". The last two little songlets may be changed to "Tic-Tac", "Tic-Tac", or, in the case of the bells, to "Bim-Bom" or "Ding-Dong". Thus may the

simple swinging of the ball be made the messenger that brings into the child's world the clock and the bell, man's great measures of Time.

In a thousand and one such ways the Mother may give to her child, in sweet, simple, playful manner, the essential elements of all after-observations of the outside world and thus facilitate his mastery of them.

**KINDERGARTEN  
PLAYS.**

In tracing the gradual unfolding of these simple nursery plays into the activities of the Kindergarten, we must keep in mind the *two-fold* use of the ball. First: Space and Time are measured by it and the various kinds of motion are brought to the child's consciousness by these movements of the ball.

Second: He is led by his play with the ball to observe the various *objects* in the outside world. This distinction becomes clearer as we go forward in our consideration of the origin and development of the Kindergarten games, as well as of the source from which the Gifts and Occupations are derived.

In our study of the subjects of education, as a whole, including not only those of the public school, the college and the university, but, also, those of that great "world-school" into which men enter after graduating from the universities, wherein the *World-Spirit* is the teacher and Life the school-room, we find that the advanced labor of the most highly endowed students (whom we call artists) still divides itself according to the two lines distinctly discernible

in these nursery plays with the ball: namely, the "Time Arts" and the "Space Arts". Here we shall endeavor to show, in a brief outline, how these imperishable records of man's noblest emotions lie in germ in the plays with the ball, when it is rightly understood, as thus the child from the beginning is led to express himself by means of movement in Time and, through plastic materials, in Space.

**MOVEMENT PLAYS.** In the extremely interesting chapter on "Movement Plays", in the "Pedagogy of the Kindergarten" we are shown, as before stated, how in the various activities of the ball, such as rolling, hopping, swinging, turning, etc., lies the beginning of the whole of the Movement Plays and how out of the Movement Plays grow many of the Representative or Dramatic Plays.

When the ball rolls or runs across the floor the child feels a desire to do likewise. It is the imitative instinct stirring within his heart. He wishes to do what he sees being done in the outside world. Here he seeks to express the activity awakened within him by the sight of the ball's activity, and thereby the better to understand it. All students of the little song of the "Weather Vane" in the "Mother Play Book"\* realize how important it is to understand this instinctive imitation of the outside world.

The child puts his own life into the ball when he

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\*In passing, permit us to recommend Dr. Snider's "Commentary on the Mother Play Songs" as of great assistance to the mother or young student in the study of the book. Also Susan Blow's "Letters to a Mother."

plays it is a kitten, a bird or other animate object, but with equal readiness he takes the activities of the ball into himself, in other words, he joyfully plays that he is a ball.

Anyone who has ever been much with children can testify to the childish delight in being jumped up and down in imitation of the bounding of the ball, or in being allowed to run from one side of the room to the other and back again in time to words set to the same music that has been sung for the rolling of the ball.

Various pretty little games may be created by letting the child swing his arm to and fro in rhythmic time as the Mother, Kindergartner or some other child swings the ball, singing some such words as:

“ Bim-Bam, Swings the bell!  
Bim-Bam, Swings the bell!  
See it go, To and fro,  
Bim-Bam, Bim-Bam! ”

Or the ball can be swung from right to left and first the right arm of the child and then the left can swing in a like manner and some such rhymes as the following can be chanted:

“ Tic-Toc! Tic-Toc!  
Goes the Clock.  
Tic-Toc! Tic-Toc!  
Not too fast and  
Not too slow—  
Tic-Toc! Tic-Toc! ”

And many of the little lessons in punctuality and order which are suggested by the “Clock Song” in

the "Mother Play Book" may be begun, in this way, as well as the rhythmic exercise of the child's arms and legs. (It can readily be seen that the right and left leg may easily repeat the above exercise given for the arms.)

In passing allow us to urge that it is an excellent thing to have, in each nursery and Kindergarten, a clock whose pendulum is plainly visible. It thus becomes not only a silent teacher of the passing of Time but of the organized division of Time, an important lesson for every soul who would make the most out of life.

Again the ball, by means of its string, may be swung round and round. And the child will soon begin to swing his arm round and round. This energetic and healthful exercise is easily turned into a little game in which the right arm and the left alternate in time to the song. Moving fast or slow as the words indicate:

" See the wind mill turning round  
As it stands upon the ground.  
Faster, faster does it go  
As the wind its arms doth blow.  
Slower, slower turns the mill  
Now, its arms are standing still."

This can be made into quite a dramatic game, as the words, gestures and music correspond.

It is well in all such games to have the sense-experience precede the play, but it is not always necessary, as pictures and simple but graphic descriptions can create the needed mental image. In fact,

demanding that the child shall *always* have a sense-perceived object before playing a game tends to deaden the power of imagination, a power which he exercises with so much delight when he plays he is a wild animal, a giant or fairy or anything which his fancy has called up. However, the average adult is less likely to err on this side than on that of not giving the child enough personal, individual experience of the fundamental activities and instrumentalities, by means of which nature lives and man develops. Whether a child has or has not seen a bell swing to and fro, a clock tick, or a windmill revolve, the rhythmic movement of the ball helps, not only to stir within him a desire to do the same, but also impresses upon him the rhythm of the movement. It is at once seen how similar games may easily be derived from the various movements of the ball.\*

**SOCIAL GAMES.** The next step is to change these primitive little "Movement Plays" which give exercise to the various parts of the individual child's body, into plays and games in which a number of children join and in which their whole bodies become parts, as it were, of a larger whole, namely the entire group of children, who now act in concert, as a unit. Such games as "The Traveling Game", "The Wandering Game", "The Visiting Game", "The Little Stream", "The Mill Wheel", "The Circle Game", "The Snail", "The Star", "The Crown", "The Flower", "The Wreath",\* all grow

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\*See "Pedagogics of the Kindergarten," pages 270-285.

out of these simple ball exercises and are far more truly rhythmic than one would suppose.

Out of such rhythmic movement of body in time to music and chanted (or sung) words arises the true dance, which is what the young child needs rather than those dancing school lessons, which were originally intended for the ball room exhibitions. These are sometimes introduced into the Kindergarten through a mistaken idea that rhythm may be taught from without rather than through a realization that rhythm is the joyous, spontaneous response of the body to the rhythmic feeling awakened in the heart. In the rhythmic chant of the Leader and the answering chant of the chorus, as given in many of the most beautiful of the Hebrew psalms, we feel the swaying of the bodies, that must have accompanied the chant, and learn to recognize in this threefold rhythmic expression of body, mind and heart the embryo out of which have grown the great religious oratorios that have stirred and uplifted the Christian world.

The present book is not, however, to explain or illustrate the Kindergarten Games, though such a book would be most interesting and valuable and would show clearly the difference between *mere play* and the *developing, educative play* which helps to unfold the child's inner life into right relations to Nature, to Man, and to God.

The present digression has been made to show how the Ball of the First Gift, is the beginning of the



Plays of the Kindergarten, and of many charming games which could be carried over into the primary grades; the ball is also the germ of all the Hand-work of the Kindergarten; thus we see why it is called the "potential gift."\*

**REPRESENTATIVE GAMES.** Let us turn now from the Movement Plays suggested by the rolling, hopping, swinging, etc., of the ball to some of the interesting and helpful plays by the ball as an *object* showing both the quantitative and qualitative properties of matter.†

We find, again, a gradual evolution from the mere two-word plays for the infant, such as: "Birdie flies!" "Birdie flies"; "Ball rolls", "Ball rolls"; "One ball, Two balls"; "One ball, Two balls"; "Apples red, Apples red"; "Cherries ripe, Cherries ripe", etc. In these the young mind is playfully led by the words and song, as well as by the object, to begin to perceive first and then to organize the properties of matter, by having his attention directed to properties which are the same in two or more objects, namely, Birds fly as well as Balls; Balls are red and so are Apples, etc. The educative value of these little plays has already been explained, so we will pass on to the next stage where the child plays

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\*See "Pedagogics of the Kindergarten," pages 244-270. We wish to call especial attention to the play called "The Wandering Brook" in which the complete transition is made from the external to the internal meaning of the play.

†The organization of the properties of matter under the two well defined and psychologically considered most suggestive headings of "Qualitative and Quantitative properties" is so ably given in Dr. D. J. Snider's "Psychology of the Gifts" that we will not enlarge upon it here.

that he is the new object which has the same properties as his ball. For example, the baby game of swinging the ball about in the air as far as the string and the arm of the Mother will permit and calling it a bird flying, incites the child to want to fly also and some little game about the bird in the nest is created. This grows more in detail, and more of the dramatic element, which slumbers in every child, is awakened as he calls to his side a mate and the two fly back and forth seeking food and bringing materials for the fashioning of their imaginary nest. As the child grows older and is placed in companionship with other children who are of his own age and who are in the same stage of development, the community feeling begins to quicken within him, as it could not quicken when only his Mother or his nurse were his companions.

The emotions stirred by the play of the flying birds (especially if it has been accompanied by the watching of real birds) demands social expression in which the other children take part, and we have some such touchingly beautiful game as:

“ In a hedge, just where ’tis best  
Little birds have built a nest.” \*

All the tender and beautiful suggestions of ideal family life, and of Divine Providence, which are given in the “Bird’s Nest” in Froebel’s “Mother Play Book”, may be incidentally woven into such a play. Almost any enthusiastic Kindergartner can tell story

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\*Eleanor Smith’s “Songs for Little Children.”—Vol. 1.

after story of how this little game has brought forth the noblest and most self forgetting conduct on the part of her children in whom the inherited instinct of nurture has been awakened by it. And yet it is a simple, childish drama loved by all children.

We have enlarged upon this particular Game merely to show how the ball, as object leads into the character-building play for which the true Kindergarten Play is so pre-eminently fitted.

It follows, as a matter of course,  
**HOW THE BALL** that having played birds in the nest  
**GAMES LEAD TO** the child should desire to construct  
**CONSTRUCTIVE** in more tangible form both birds  
**HAND WORK.** and their nests, and we are led

thereby to the occupations, or the handwork of the Kindergarten, which, in turn, leads to a conscious knowledge of the possibilities as well as the limitations of the various materials which are given by the Kindergarten.

This knowledge of his materials, together with the experiences and skill which grow from his childish efforts at constructing objects, brings confidence in self, and confidence allows creative thought to venture forth and assume material shape, and thus as time passes and the child grows, not only does his eye become keener and his hand become more deft, but his inner world becomes richer; and out of the *fullness of creative life* Sculpture, Painting and Architecture are born. All of which the sympathetic and discerning Mother or Kindergarten sees in

embryo, in the form, color and building materials of the Kindergarten.

In order that the child may the more readily master the properties of the material world about him and thus the sooner get out of the world of *confusing chaos* and into the world of *organized creation* many little songs and games have been devised. A few are given here, not as models or types, but merely to show how easily a new game may be created to meet a new experience of the child. In fact, it is best that the songs should be created anew for each new set of children, thus coming directly from the heart of the Mother or Kindergartner and going directly to the heart of the child. There are Kindergartners who are skilled enough to draw the words and rhythm of their songs from the children themselves. This is better still. But care must be exercised that proper rhythms and correct selections of words are made, else the desire to have fresh, new songs for each new occasion will degenerate into mere doggerel and corrupt the child's taste as do "rag-time" music, the "Cake-walk" and "slang," which are some times permitted under the mistaken idea that they give more freedom to the child. Whereas, real freedom is, not the indulging in the caprice of the moment, but in learning to love and to choose the best. There is plenty of opportunity for the child to indulge his whim, or caprice, without taking any of the precious Kindergarten hours for that purpose.

The songs given here are selected from those written by students while taking their Kindergarten training. All Kindergarten students (after having been shown the need of certain experiences on the part of the child) are required to make original songs, games or exercises which will meet those needs. These, of course, are examined by the teacher and rejected or accepted as their merit deserves. In the following little song the *young* child not only sees increasing movement in the ball but also has emphasized for him the consciousness that the ball is an object distinct from himself and hence his own "ego", or self, is made clearer to him.

The value of his early awakening to a consciousness of himself *as self*, is shown so fully in the little "Kicking Song" of the "Mother Play Book" that we need not enter into a discussion of it here, otherwise than to call the attention of the reader to the fact that the awakening of the "ego" is the first step in personal responsibility and that the strongest, finest types of character are those who fully realize that they are responsible for their own conduct, whereas, the weak are constantly blaming somebody else or some outside circumstance or condition, for their failure to live their highest. In "King Lear" Shakespeare has the villain Gloucester exclaim: "Our *Stars* do make us err!" And Dante shows that the great difference between the souls that are in the "Inferno" and those that are being purified by the "Purgatorio", is that the former blame God for

their suffering, and the latter realize that they have brought it upon themselves.

But let us return to our Ball game, emphasizing increase of Movement (Tune same as Song No. 37 in "Songs for Little Children" by Eleanor Smith).

My little ball lies in my hand  
 So quiet and so still,  
 I'll gently rock it to and fro  
 And love it, so I will.  
 Tra-la-la-la-la-la-la-la—  
 Tra-la-la-la-la-la-la-la.

The little ball stirs in my hand,  
 I think it wants to play.  
 I must be sure it does not fall  
 Or else 'twill run away.  
 Tra-la-la-la-la-la-la-la—  
 Tra-la-la-la-la-la-la-la.

Next the child gently pulls the ball out of his hand by means of the string to which it is attached, then swings it back into his hand and sings:

My little ball from out my hand  
 Hops gaily to and fro.  
 I like to watch it, all the day,  
 Because I love it so.  
 Tra-la-la-la-la-la-la-la—  
 Tra-la-la-la-la-la-la-la.

The same activity of the ball may be changed later into a bird game and some such words as the following be sung:

(MUSIC—"Here's a Ball for Baby.")

Here's a nest for birdie,  
 Soft and round and small.  
 See the birdie sleeping  
 In the tree so tall.

Now the bird is stirring  
In his nest so high.  
Soon he'll hop out gaily  
To a branch near by.

Now away he's flying,  
Flying up so high,  
Seems to Charlie watching,  
He will touch the sky.

Look! he's homeward flying  
From his flight so long,  
Rests now near the branches,  
Sings his good night song.

In the case of the "Flying up so high" the ball may be tossed up in the air. All sorts of stories and talks about birds can cluster around such a play as this until the child learns to love bird life and to see not only its free flight but also a lesser form of family life and family love resembling that which is found in his own home. It can, indeed, help to interpret to him this family life because it is not so near, therefore less readily confused with his personal interests. In the little song of the "Bird Nest" in the "Mother Play Book" we are given an illustration of how a deep and reverent feeling of a Divine Providence may be brought to the child by the study of bird life. Such books as John Burroughs', Thompson-Seton's, and Mary Treat's are needed to help the Mother or Kindergartner return to the freshness of observation and sympathy with Nature's activities, but the child needs only the sight of a real bird to feel his unity with it.

A pretty little song by means of which the sensa-

tion of the roughness of texture of the worsted ball is brought to the child's consciousness is:

My hand must be the hard mill-stone,  
My ball the grain must be,  
As turns the mill-wheel round and round,  
So turns my hand, you see.

This may be sung to the music of No. 37 in "Songs for Little Children" by Eleanor Smith. We must not, for a moment, think that the texture and compressibility of the ball which are brought out by such a game as this constitutes its only educative value; the child is led to take an interest in mills and the process by means of which they transform edible grains into flour. An excursion to a neighboring flour mill might be made at this time, or if that is impossible some of the excellent pictures which are issued by the leading flour mills are easily procured. The simpler the process the better. Miniature and primitive grinding stones may be purchased from the curio stores, and the older child can really crush the wheat. The higher, *spiritual* thought which lies in such little plays as this is that *of the great institutional trade-world* which environs him. How many people serve him whom he does not know and cannot possibly serve in return. This leads him to the feeling, prompted by gratitude, that he will, at least, do his part in the world's work, no matter how small that part may be. All this, and more, may be brought in simple childish play to the child. No moralizing, whatever, is needed; the facts speak for



themselves. Such plays as the mill-wheel help to make those facts real to the child. There are some ten trade songs in the "Mother Play Book," all of which are intended to quicken the *institutional conscience* of the child and make ready for the great truth that is slowly dawning upon us, namely, the social unity of the race. Does the skeptic say that this is far-fetched? Let him watch a group of children as they play "store" or "blacksmith" or "ditch digger" or "soldier" or personate any other activity of mankind that may have interested them; the eagerness of their voices, the dramatic pose of their bodies, the light in their eyes, will answer him. They have *vicariously* entered into the great trade world about them and the dormant instinct which a hundred generations of working ancestors have transmitted to them is awakening and preparing them for the real service of the world. Not that this play-service is in any way to take the place of the actual kindness and helpfulness which they can and should exercise. That, however, is small and necessarily limited. This is large and fires the imagination; both are needed.

The following is an exceedingly simple little exercise in which the mobility of the ball and the direction, straight across, or slanting, as the case may be, are brought into play. A group of children are seated at a table or on the floor opposite to each other. Those on one side are given the balls and at the words "One!" "Two!" "Three!" "Roll!" the balls are rolled over to the children on the opposite side.

Again at the given signal, they are rolled back to the children to whom they were first given. As soon as the children have skill enough to keep in unison in the rolling, some such little song as the following may be sung :

Roll over—Come here,  
So merry—And free,  
My playfellow—Dear,  
Who shares—In my glee.

The co-operation and self-control which such a play engenders give higher significance to it; though the mastering of the material world must not be lost sight of. Therefore other objects that can roll must be experimented with by the children, other straight or slanting lines must be found. The arm may be held out in the direction in which the ball rolled. Sticks may be laid in the same direction, lines may be drawn, and so on; as the games and plays given with the ball are never intended to end there, but rather to lead the child to observe similar things in the world about him. A "Key to the Outside World" they are sometimes called.

Another little song in which the co-operation of the children is still more necessary is :

Little ball, pass along, gaily on your way,  
While we sing our merry song, you must never stay.  
When, at last, our song is done, we will try to find  
In what pair of little hands you've been left behind.

Here the children stand in a circle and the ball is passed in time to the music from one child to an-

other, and the children all clap when the ball is found.

In the ring our Philip stands  
And holds a ball within his hand.  
Every little child must watch it  
And be ready now to catch it.  
While the music is quite slow,  
Ready, Philip, you may throw!

This play explains itself and is the rhythmic version of the ball-tossing so common on our streets and vacant lots.

Dear little balls we want to count you.  
One ball, two balls, three balls,  
Four balls, five balls, six balls.

It may be sung to the tune of "My Ball I Want to Bounce You" and help the young child to count, thereby seeing number to be increase of mass, a new ball being added to the row as each new number is sung. Of course other things also are to be counted and sung; to be counted and laid in position; to be counted and drawn.

An amusing game may be made from the suggestion by placing children themselves in a row with the words: "One child, Two children," etc.

Three little balls, creeping for you!  
(One crept away and then there were two!)

Two little balls bouncing for fun!  
(One bounded away and then there was one!)

One little ball rolling alone.  
(It rolled away and then there was none!)

Little balls, little balls, all gone away!  
(They'll come back some other day!)

is a suggestive rhyme that the children delight in, as it gives mystery of disappearance and the promise of the return. Many traditional games, such as:

Ten little Indians sitting in a row—

are based on the same instinctive love of change, and yet subtraction of numbers is also taught by such games.

The shape of the ball is emphasized in such a play as:

My little ball is nice and round,  
I love to roll it on the ground.  
If 'twere not round as round could be  
It would not roll so well for me.

Experiments with elliptical, ovoidal (or egg-shaped) objects, as well as with the various kinds of round fruits and pebbles, may follow such a game, all tending to help the child classify these objects under the general head of spherical, or "the ball family," as children some time call such collections.

The child also learns, or begins to learn, that perfection of form for the function demanded is better than approximation to the desired form; or these words might be sung:

This little ball so round  
Can roll upon the ground.  
Can roll upon the ground.  
Back and forth, to and fro,  
It can ever rolling go.  
This little ball so round  
Can roll upon the ground,

or what is better still, mother and child, or kinder-

garnet and group, can first experiment and then compose a song in which to tell the experiences gained.

It can readily be seen without further tax of the reader's patience, how games emphasizing elasticity, gravity and the various other properties of matter, may be created as the growth of the child's perceptive powers increases or as circumstances bring to him experiences in which this or that property of an object is used. Let it always be remembered that like experiments with other elastic and non-elastic bodies, other objects of light and heavy weight, must be given.

In this way the ball becomes not only the "Key to the Outside World", but also a kind of poetic expression of many vague and ill-defined impressions.

Motion, color, and number may all be emphasized in some such game as :

Six balls upon the table lie,  
Red, orange, yellow, green,  
Blue, violet—the colors all  
Within the rainbow seen.

By giving six children six balls, that duplicate the colors of the balls on the table, much fun may be added to the play. Each child, in turn, rolls his ball so as to hit the ball of the same color.

He may sing, or he may not sing, while aiming :

My little ball is in my hand  
And I will take good aim  
And with it try to touch the ball  
Whose color is the same.

The plays and games by means of which the child is led to observe, classify and love color in the outside world are innumerable.

The six colored balls may be placed in a ring on the table, one child is then told to shut his eyes; another child now takes one of the balls from the table; the first child is then bidden to open his eyes while the rest of the children sing:

Here we are playing together  
So merry and free  
Now one of us goes from the ring;  
If rightly you guess who the missing one is  
We'll merrily clap as we sing.

Very simple games in which an exercise is repeated by first one child and then another, (promptness being an essential part of the game), may be devised in some such fashion as this: Six children stand in a row, each holding by its string, a ball of a different color. The first one steps forward, and suiting the action to the word, sings:

Here's a little *red* ball,  
Swing it round and round.  
Roll it on the table,  
On the floor bound.  
Tra-la-la-la-la-la.

The next child now steps forward and proceeds to do exactly the same thing as did the first child, singing:

Here's a little orange ball  
Swing it round and round, etc., etc.

until each of the six balls has been brought forward.

Cherries ripe! Cherries ripe!  
Who will buy my cherries ripe?

is a social game in which one child walks round the table or play circle, as the case may be, with a basket of balls on his arm. Selecting a red ball he holds it up in the air and sings the above words. The other children respond by singing:

Cherries ripe! Cherries ripe!  
We will buy your cherries ripe.

He then gives the ball to some one of the children who puts it out of sight. The child in the center now selects an orange ball and holding it up sings:

Oranges ripe! Oranges ripe!  
Who will buy my oranges ripe?

and so on until all six of the colored balls have been sold as fruits of a color corresponding to the color of the ball. The seller of fruit now goes to the first child and says: "Please, give me the money for my cherries," and then to the next and the next until all the balls have been dropped again into the basket.

This game, though simple, always charms the children if it is well played, because it opens to the child's mind that wonderful and beautiful world of color to be found in Nature's fruits, vegetables and flowers. (It goes without saying that it can be changed into a sale of certain vegetables or flowers of the color of the balls.) A visit to the nearest green-grocer now becomes a voyage of discovery and a halt before the florists' windows calls forth exclamations of delight.

This subject of color will be more fully treated when we come to the study of the "Qualitative Gifts" or "Occupations" of the Kindergarten, in which the love of color is more fully developed, until the child's perception grows into the beginning of an appreciation of the inexhaustible wealth of tint and shade, of hue and tone of color, that enrich and ennoble life as much as does a love of music. No life need ever to be narrow or barren or lonely that has learned to love Nature's world of color and to know how to use aright the subtle combinations of dominant, contrasted, analogous and perfected harmonies of color. Such a soul not only sees beauty everywhere but will create beauty out of the most meager surroundings.

Besides this new organization of Nature's colors such games introduce the child to other activities of the trade-world, not only in the ideal play-form, but also in its actual financial form. A few vegetables, fruits or flowers may be bought while on the excursion and paid for in pennies by the children, and thus they begin to comprehend money, its legitimate use and its value as a means of exchange or ownership, a very important lesson.

But deeper than this there lies in all such games of barter and trade the dim perception of the interdependence of man and the Providence of God. These more profound relationships need not be insisted nor moralized upon, but if the mother or kindergartner has them clearly defined in her own mind and



sacredly cherishes them in her own heart as absolutely essential to her own right living, they will pervade the play much as a delicate perfume exhales from the flower.

#### ANALYSIS OF THE GIFT.

1. Salient characteristic of the gift.
2. Contrasts within the gift.
3. Object of the gift.
4. Relation to succeeding gift
5. Relation to the child.

## CHAPTER II.

**THE SECOND GIFT.**

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The Second Gift consists of the wooden sphere, cube and cylinder, all having the same diameters; eyelets are placed in the corner, edges and faces of these forms, in which strings can be fastened for the purpose of twirling and thereby exhibiting the transition of form. They are also perforated in such a manner as to be easily revolved upon a stick.

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**IMPORTANCE  
OF THE  
SECOND GIFT.**

The Second Gift demands more earnest and intelligent study than any one of the other Play-Gifts of the Kindergarten, as it presents the best analogy to the psychological significance of Froebel's thought. In Dr. Denton J. Snider's "Psychology of the Play-Gifts" is shown the fuller analysis of unfolding of the child's mind from unconscious unity through separation back to conscious union and here is presented the parallel to these three stages of growth, which is given in the sense-perceived unfolding of the cube out of the sphere and the return through the cylinder to the sphere again.

The Second Gift is a key to the true meaning and proper use of the remaining Gifts and Occupations. This is why it has been called "The Originative Gift." Out of it evolve the series of solids, surfaces, lines and points of the rest of the gifts until they return, as it were (through the pricked point)

to the invisible center of the Ball of the First Gift, thus making a complete circuit of all forms; as all forms, however varied, are composed of solid content, surfaces, lines and points. And the young child through his familiar play with these elements of form begins his mastery of the form world. Froebel was at work on this Second Gift throughout the fifty years of his educational career. Almost as long as his contemporary Goethe took to complete his Faust poem. And it remains yet to be seen which was the more valuable contribution to thought, mighty as is the revelation of human nature which the great Faust poem portrays.

Concerning the symbolic suggestiveness of this Gift we refer the advanced student to Froebel's "Education by Development", pages 205, 206-317. And "The Pedagogics of the Kindergarten", pages 70, 71-78, 79, 86, 91, 98, 200.

Many helpful suggestions may be found in Kate Douglas Wiggin's and Nora Smith's "Republic of Childhood", Vol. 1.

Dr. Hailmann has, also, said some exceedingly interesting things about the suggestive nature of the Second Gift in his "Law of Childhood". And perhaps there is nothing more beautiful in the Baroness Marenholtz von Bulow's life of Froebel than the sympathetic way in which she explains Froebel's use of his Play-Gifts to illustrate his theories, especially in reference to this Second Gift. See, "Reminiscences of Froebel," pages 4, 6, 7, 29, 30, 73, 84, 152,

186, 222, 223, 267. We must, with these few references, turn from this fascinating subject, almost exhaustless, as it is in its suggestive psychology and rich symbolism.

As this is a book on the Morphology of the Kindergarten Gifts, let us proceed, at once, to some plays and games illustrating how The Second Gift may be used with little children, feeling sure that through the *use* of these remarkable play-tools the deep spiritual significance of them and of the kindergarten as a whole will reveal itself to the mother or kindergartner as in no other way.

The misunderstanding and consequent misuse of the Second Gift has arisen, in part, at least, from the fact that it was not completed before Froebel's death, although it was clearly planned by him as shown in "Education by Development," pages 342, 343, and restated by Jules Guillian before the International Congress of Instruction at Brussels, 1880. See Barnard "Child-Culture Papers," pages 359, 360.

**NURSERY**           The Plays that have been given us are  
**GAMES.**           extremely simple, though full of mean-  
                          ing. In the nursery the hard wooden  
sphere is to become the child's second play-thing,  
after he is somewhat familiar with the soft worsted  
ball. Generally speaking it is brought forward  
about the second half of the first year; the period  
when it should be given varies according to the de-  
velopment of the infant and the amount of time the  
mother has for play with her child. The sphere is

not to take the place of the soft ball, but rather to alternate with it and thus give the young mind new experiences with an old familiar form; as the kindergarten method is always from the known to the unknown.

"The sphere is more complete than the ball", says Froebel, "and it is also more easily moved, as its surface is smoother; it is also heavier and, therefore, rests more firmly when it rests.

"Yet, because of its greater weight, the child's use of it makes demands upon his more developed strength and dexterity."

**THE SIGNIFICANCE OF SOUND IN WOODEN SPHERE.** In such simple fashion as this he begins his exposition of the most remarkable educational instrument ever devised for the arousing the child-mind. One feels that he is here addressing the peasant mothers by whom he was surrounded. He goes on to speak of the delight which the loud sound, produced by the wooden sphere, will give to the infant who is becoming dimly conscious of the fact that he, himself, can articulate sound; he also suggests many pleasant little games that may be created by an ingenious mother, wherein the soft voiced ball and the loud voiced sphere take part, and the child is thus led to make a step forward toward primitive meaning of "soft" and "hard", and the transferred meaning of "soft" when contrasted with "loud". This transferring of meaning from a lower physical sense to a higher is the beginning of the

philosophy of language and is held as an important thing by Froebel, as we see by his comment on it in the song of "Zish Zish" in his Mother-Play Songs.\*

**THE ESSENTIAL  
ELEMENT OF THE  
SECOND GIFT.**

However, neither the sound, the weight, nor the external surface of the sphere are its important features, although they serve as a bridge by means of which the young child's interest may be led from the many colored balls to this new and less attractively colored plaything. *The essential element which the sphere introduces is that of permanence of form.* The soft worsted balls may vary in size according as the winding of them has been tight or loose, or as the covering is close or easy fitting. The new play-mate is always two inches in diameter. The worsted ball may be pulled out of shape by baby's hands until it resembles a prolate spheroid, or it may be punched in by the vigorous little thumbs until it assumes the shape of an oblate spheroid, or an end may be stretched until it appears to be a pear-shaped object or some other irregular curved form; but the hard wooden sphere, though it is pounded or punched or rolled or even sat upon, remains the same.

And here the greatness of Froebel's genius shines out. He believed that the child potentially inherited the intelligence as well as the "animal instincts" of his ancestors, and therefore he dared to give to the

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\*For a practical illustration of this idea see "Two Children of the Foot-hills", pages 202-203.

infant, in embryo form, of course, the beginning of the mighty science of geometry. The science by means of which the race has conquered space and measured all space-filling objects, from the minutest angle on the face of the tiniest crystal to the size and distance of the mightiest planet that swings through space! And, yet, he would have this beginning of geometry given so gently, so in accordance with the child's needs at this period of his growth that the careless, or superficial observer would only see a fond mother playing a childish little game with her baby.

Many of the nursery games already given for the ball may be repeated with the wooden sphere, whose unchanging form will make them the more enduring in the child's mind. It rolls with less friction and therefore more surely than the woolen ball, so the direction of its rolling is the more easily watched by baby eyes. It swings with more precision when suspended from a string and therefore the young brain distinguishes the more readily between "right and left", "back and front" or "round and round".

Although it repeats the games of the First Gift it is a complete play-thing in itself. This is a characteristic of all of the kindergarten tools, each foreshadows what is to be found in the succeeding one, and each makes permanent what had been given temporarily by its predecessor, thus each is evolved from the past experiences of the child; and, yet, each is separate and distinct in and of itself; and is created

for a distinct, individual purpose which could be fulfilled by none of the other Gifts. It is this independence and yet relationship of the kindergarten Gifts that constantly suggests to the adult mind human relationship, wherein each life stands as an individual, distinct and separate from all other individuals, sent into the world with a message of his or her own which no other mortal could give, and yet each life is dependent upon and interwoven with the life of all; until no man can live unto himself alone, nor *sin* unto himself alone. As we rise or fall all humanity rises or falls in proportion as our individuality of character has developed.

Froebel felt and saw this separation and connection of humanity, as well as that of nature, and with consummate insight created these Play-Gifts which would bring the child into contact with such objects as would show him independence and interdependence, variety of activities, and, underlying these varied activities, one form. Later on in the spinning and twirling of the cube and revolving of the cylinder the child sees *many shapes* evolved by the changing *position of one form*.

**NURSERY GAMES  
GIVING THE  
ORGANIZATION OF  
THE MOVEMENTS  
OF OBJECTS.**

But let us return to the baby-play with the two-inch wooden sphere, although we have not in reality digressed from it, merely having entered into its deeper meaning. A pretty little game which will divert the restless or fretful child by



changing the current of his thought, is to place the sphere upon a plate and by gently raising first one side of the plate and then the other cause the sphere to roll rapidly around on the plate. The mother, at the same time, may sing some little ditty improvised for the occasion, such as,

Round and round the plate I go,  
Sometimes fast and sometimes slow.

Or the sphere may be placed on a slate, or box cover, and rolled straight across by the slight elevation of first one end of the slate or box cover and then the other. The mother singing some such words as,

Round I run when in a plate,  
Straight across when on a slate.

This last named rhyme is taken from the "Kindergarten Guide" by Marie Kraus-Boelte and John Kraus. The song goes on,

Move your hand and bid me go,  
Strict obedience will I show;  
Let me rest, or run, or roll,  
Make a bell of me to toll,  
Let me swing, or dance, or fall,  
Always I'm your darling ball.

Many pretty child-like rhymes are to be found in the same book. We quote this one in full because it suggests half a dozen different plays that may easily be derived from it, such as :

Make a bell of me to toll,  
Bim Bam! Bim Bam!  
Make a bell of me to toll,  
Bim, Bam! Bim, Bam!

or

See me swinging in the air,  
Pull the rope with gentle care,  
Swing, Swung! Swing, Swung!

In this case the long string is placed over the poles of the Second Gift box and the ball is swung by gently drawing the string and letting it relax. It hardly seems necessary to illustrate the manner in which almost every mother instinctively improvises rhythmic words for her child's delight. In such little plays the child's attention is not only called to the various movements possible to the wooden sphere and the similar movement of objects about him, but also to the connection between these movements and the word that describes them. He is therefore, helped forward to an earlier mastery of definite and intelligent speech. This point cannot be too emphatically stated owing to the general habit among grown people of talking to the child in a dialect (usually called "baby-talk"), which retards his use of his mother tongue. We should see the absurd and injurious nature of such conduct if we were to apply it when teaching a foreigner to speak our language.

**ORGANIZATION** Innumerable little plays and  
**OF POSITION** games may be invented to describe  
**IN SPACE.** the sphere's relationship to other  
objects, such as,

*Under* the book the sphere now creeps  
*Out* of this shelter it shyly peeps.

or

*Beside* the box it boldly stands  
Now quietly rests *within* my hands.

It can play a game with the older children who are to state where it is before it changes place such as: "It is on the table". "It is up in the air". "It is touching the lamp". "It is under the chair", etc.

Other objects should, of course, be brought before the child in connection with such plays. Apples, nuts, marbles, may be spun in the plate or rolled on the box cover, etc., etc.

#### THE INSTINCT OF ANIMISM.

Or, again, the child may personify the sphere and run or hop or dance as it does. This imputing of life to the play-thing and partaking of the play-thing's activity is rooted as deep in the nature of childhood as it was in the animism of the child-race. The strong, well mother seems to overflow with this same abundance of life, for she instinctively talks to her child as if his play-things were possessors of life. And it is well that she does, for it leads him into a sympathetic interest in the object which could be obtained in no other way. A wrong use is sometimes made of this instinct when the mother whips the stool over which her baby has stumbled or slaps the table for bumping his head, thus transferring the responsibility of the fall or bump from the child to the inanimate object which was in no way responsible for the deed.

**NEED OF  
ORGANIZED  
PLAY MATERIAL.**

But the child grows daily. His muscles gain new strength, his senses become keener and his mind assimilates and digests more rapidly. Just as he needs more food for his body as it grows larger and stronger, so, too, his mind reaches out after new objects to study and new instruments with which to express itself. And, yet, if this demand is to be wisely met, this growing mental capacity is no more to be fed upon indiscriminate, haphazard impressions, made by stray objects that happen to fall in his way, than his growing body is to be left to devour any kind of food which may chance to be within reach. At least, such was Froebel's theory, and it commends itself to the thoughtful mind. Kindergarten training classes are opening all over the land, that mothers and kindergartners may study, not only the psychological unfolding of the child mind and the needs which his different stages of growth demand, but also the material evolution, or unfolding of form, sound, color, and all the rest of the properties of matter which are to appeal to the child's senses. In other words the play-things used by the child should have the power not only to change from one shape to another but to change logically, or according to the law of evolution, if they are to help build up a logical or rational mind within the child. When this fact is rightly understood there will be no more uncertainty about the educational value of the geometric gifts in the

kindergarten than there now is as to the use of the multiplication table with the older children, and the various aimless and capricious uses of clothes-pins, peanut-dolls, spool-knitting and the like will be relegated to the place where they belong as merely incidental diversions.

**WHY THE CUBE  
IS GIVEN NEXT.**

A short digression is now necessary in order to explain why the cube is taken as the next play-thing. There is a very great need at the present time for a thorough chronological reorganization of the writings of Froebel so as to show their relationship to his development. In his chapter on The Connecting School in "Education by Development" he says, "The consideration of the outer world, in its primary conceptions, form a principal subject of the Connecting School. Here, also, I can refer only to "The Education of Man" by Frederick Froebel, *although in more than a quarter of a century which has elapsed since the book was written and published, the mode of treating this subject has been manifoldly improved and simplified.\**

Notwithstanding this frank confession that he had outgrown his first book, many educators base their judgment of Froebel's entire thought upon this book. It is true that it contains some of his finest and most exalted utterances concerning the destiny of man and the true spiritual view of education, and as a source of inspiration to the teacher its value

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\*See page 297, Education by Development.

cannot be overestimated. Many of its details, however, are drawn from the experiences of his Keilhau School for boys, which proved a failure as a practical experiment and which was magnificently transcended by his kindergarten. The latter was not created until eleven eventful years later, during which life had driven him hither and thither, even sending him for a time into exile until after he had learned, through many defeats, that true freedom is voluntary obedience to the law of right, not the mere "passive following" of the child's moods and caprices so strenuously advocated in the Keilhau Experiment-School.

The literature of the Kindergarten, upon which as before stated his real fame depends is, "The Mother-Play Book" and the three volumes of "The Pedagogics of the Kindergarten", the last volume of which has not yet (1903) been published in English. An illustration of the need of a chronological arrangement of these writings is the confusion we find as to whether the Cube shall be presented alone, or with the Cylinder, owing to the fact that there is no date attached to the very important paper entitled "*Fredrick Froebel, his fundamental principles of education, his means and modes of education, as well as his educational aim and object, in relationship to the tendencies and requirements of the time, represented by himself*". Although this paper is undated he speaks in it of the Second Gift as having already been tested by actual use with children for more than

ten years (*Education by Development*, page 205). It must, therefore, have been written some time near the close of his life. It is generally supposed to have been the paper prepared for the Baroness Mar-enholtz, at her request, and the one to which she refers in her "Reminiscences" as of such value that she always carried it around with her in a leather case.

In this most helpful and suggestive resume he gives the Cube as "the third play-mate" of the child and organizes a series of Games in which it is used alone, and others in which it is used in connection with the Sphere.

On the other hand there is the last communication of Froebel's that has found its way into print, namely, the letter to Emma Bothman, dated, "Marienthal, May 25, 1852", less than one month before his death, which occurred June 21, 1852. In it, while giving a general outline of his Gifts, he speaks of the Second Gift (in its connection with the fourteen solids representing the crystal forms) as Sphere, Cylinder and Cube. As this was his latest utterance it is claimed by some to be his final decision as to how these three forms should be used. This is the more strongly urged inasmuch as it symbolically suggests the connection of opposites, the negation of the negative, the overcoming of evil, etc., well known to be important principles in his philosophy.

The presentation of the Cube as the outer, or other

of the Sphere gives us, in a material analogy, the second separative stage of the process of the mind, and the later introduction of the cylinder represents the third stage of the process by means of which the mind travels from unconscious unity, through distinct separation on to the conscious union of which Froebel so often speaks. We are, therefore, inclined to follow the undated document alluded to above, as it evidently was written just prior to his death.

In this, Froebel would have us introduce the Cube very soon after the Sphere has been given to the child. This again shows the wonderful genius of the man. The Cube is the simplest possible geometric form that could show sharply defined contrast to the Sphere, and it is also the first necessary step in the unfolding or evolution of forms from the Sphere, as will be shown later. So we see here an illustration of the much talked of "law of opposites and their connections." Let us consider first how the Cube gives to the child the much needed contrasts, by means of which the power of comparison is developed, remembering that through the comparison of unlike objects an increased power of observation is established. Surfaces, corners and edges are the three elements which make *all* form and therefore the contrast in these and their relationship to one another make all the differences that can possibly distinguish shapes among objects. The Sphere has one curved surface; its opposite must have many flat surfaces. The Sphere shows no corners and no



edges; its opposite must show both corners and edges. When we remember that this simple play with surfaces, corners and edges begins the study of the whole great world of form which is simply a variation of faces, edges and corners, we realize the greatness of the kindergarten Gifts as instruments of education. Yet, like all other instruments, they need to be used with skill and judgment, else they fail to bring about the results for which they were created. There is as much need of training for the right use of the kindergarten Gifts as there is for the right use of the surgeon's instruments, or the right use of the musician's instruments.

**HOW THE CUBE  
HELPS TO ORGANIZE  
THE CHILD'S  
CONSCIOUSNESS  
OF MOVEMENT.**

Hoping the reader will again pardon the digression, we return to the consideration of the Sphere and the Cube. We have already mentioned the contrast shown in the ex-

ternal shape of these two play-things and have shown the "law of opposites", by means of which contrasts of forms are given to the child. We must now show the "connection between these opposites" or else the Gift will not be logical; that is, it will not illustrate the great law of evolution and thereby correspond to the child's inner development which is always from the known to the unknown. We have but to analyze our own apperceptive power to prove this latter statement to be a psychological fact. We cannot think of the structural nature of the Sphere

without thinking of the three dimensions of space, length, breadth, and thickness, all, in this case, equal and at right angles to each other (as can be easily shown by cutting any spherical object into halves according to its length, breadth and thickness). Now, the two-inch Cube of the Second Gift has exactly the same structural form, namely, the three axial planes of length, breadth and thickness are all equal and at right angles to each other. "But", some captious reader may say, "can not the same be said of the two-inch octahedron and the two-inch tetrahedron"? "Do they not divide into equal axial planes that are at right angles to each other"? "Have they not edges and corners also"? "Is not the only difference between them and the Cube the fact that the axial planes of the octahedron culminate in a point, those of the tetrahedron culminate in a line instead of in a flat surface, as in the case of the cube"? This is true, yet just this difference is one reason why the Cube was selected as the opposite of the Sphere instead of the octahedron or the tetrahedron. The Sphere not only has form but it also has mobility and the young child is attempting to organize the movements of the outside world as well as the forms of the outside world. Therefore the contrasting form must also show the opposite of the sphere's mobility; that is, it must show stability. The Cube stands firmly on its square flat face and thus asserts its supremacy over the octahedron and the tetrahedron, both of which totter and fall

when so placed that their axial planes correspond, in position, to the perpendicular axial planes of the Sphere.

All this is abstract geometry, but it helps the mother or the kindergartner to devise pretty, child-like plays which will bring dimly, at first, but steadily and surely, at last, to the child's mind the greatest truth of the form-world, namely, that *all shape is determined by the relationship of the axial planes within the form.*

**NURSERY PLAYS** Let us once more return to the  
**WITH THE CUBE.** Cube which Froebel calls "the

third play-mate for the child" (see "Education by Development", pages 194, 195, 197), although it is also the second part of the "Second Gift" of the kindergarten. On account of its six faces, eight corners and twelve edges, the cube can be used in many more ways than the cornerless, edgeless, one-faced Sphere; and the child may be led, through play with it, to the observation of many more objects about him and to much more self expression than is possible in the plays with the Sphere. This enlarging of the possibilities of his play-tools corresponds to the enlargement of his world which comes when he begins to walk and to discover new realms in the outside world, and it is usually given to him about this time.

The two forms are at first merely played with as two objects of the sense-perceived world. The child's attention is not called directly to the new ele-

ments of the corners and edges of the Cube. The sense of touch is particularly appealed to. First the Sphere and then the Cube is placed in the baby hand with some little chant or song such as :

Baby's hands hold Sphere quite tight,  
Shutting it from out my sight.

or

Baby's hands hold Cube quite tight,  
Keeping it from mother's sight.

Or, again, the cube may be placed in the extended hand of the child and a playful attempt is made to crowd the Sphere into the hand. Then with a mock surprise, which little children so intensely enjoy, the mother sings some such rhyme as this :

The Cube is in your hand I see,  
Where the Cube is the Sphere cannot be.

Thus begins the first faint consciousness of the *space-filling* properties of matter. Of course, such games or play may be varied in a hundred different ways. The Cube may be placed in the right hand and the Sphere in the left. The two may then change places and a lively game be introduced, or both may be hidden under mother's apron or handkerchief and the child allowed to put his hand under the cover and draw out one and then the other. In many such ways the "touch-hunger" with which all young children are seemingly consumed is satisfied. Other objects, with and without corners and edges, with curved and with flat faces are introduced in the same playful way. These plays may alternate with Games

in which the Sphere is rolled across the table by the child and the Cube is then pushed or shoved across. Or the Cube is placed on the opposite side of the table, or at some little distance away on the floor and the child is shown how to roll the Sphere toward it. In case he succeeds in touching the Cube with the rolling Sphere the mother claps her hands and joins in the glee. This awakens in the child the desire to try to hit it again and not only steadies his hand and arm but causes him to look attentively at the Cube toward which he is aiming. This game may be varied by marking a cross with chalk on each face of the Cube when hit. The impression of many faces is thus given and in time these may be counted. All these and such like games are but the initiative introduction to the three forms of the Second Gift, the most typical forms of all creation, and the play with them corresponds to the first unconscious beginning of differentiation in the child's mind. Such plays, however, soon lead him to notice the mobility of the Sphere and the stability of the Cube which is a valuable experience for him. Again, we repeat, these same properties of matter should be shown in other objects, and the child himself may enact the plays. He may gallop across the room while the mother sings, "Run, little Sphere, run"! and when she calls "Stand, little Cube, stand"! he may be shown how to stand rigidly still. Thus rest and motion, activity and repose, begin to be real things to him, and another great world of contrasts and con-

nections opens out before him. Of course, such plays should never be forced upon the child, for then they cease to be play, and their power to lead his interests along the right lines ceases, as at this age he is "educated by means of play". Play being the voluntary spiritual activity of this period of life. But the trained mother understands clearly both the nature of her child and the importance of these early fundamental impressions in helping him to organize the confused impressions of the outside world. She also knows that she is planting within him, through these sense impressions, the seeds of thought that will in time lead him into logical, rational habits of thinking and thus give to him the true and noblest view of life—God's view. It is a slow process but an unfailing one, and brings its own reward along with it.

**THE SECOND STEP**      The child-mind moves natur-  
**IN THE PLAYS**      ally from the undifferentiated  
**WITH THE CUBE.**      unity of perception, in which he  
                                  sees each object as a whole, to  
 the second, or differentiated stage wherein the mind  
 begins to perceive parts of the whole; and Froebel,  
 true psychologist that he was, changes his games  
 from those wherein the child plays with the Sphere  
 and Cube as merely two contrasting objects, to games  
 in which the new elements shown by the Cube are  
 brought out. He suggests a pretty little "hide and  
 seek" game in which the Cube is covered by the  
 hand, or a handkerchief, one *face* is then shown and

the question incidentally asked: "How many *faces* of the Cube do you see"? Then it is hidden again and the hand or handkerchief re-adjusted so as to allow two faces to be seen. When shown, the question is asked: "Now, how many faces do you see"? The three faces may be shown; or one *corner*, then two corners, three corners, four corners; or one *edge*, two edges, etc. As the alertness of the child develops, the question may include both faces and corners, or both corners and edges, etc. It is not an uncommon thing for children of three and four years of age to become as interested and as eager in these counting games as in "hunt the thimble" or similar games that contain the elements of hiding and revealing. The deep psychological basis of the appeal which such games make to the child is explained in the "Hiding Games" in Froebel's "Mother-Play Songs", where the child himself hides and is discovered by mother or play-mate. In the latter Game the child becomes, during the brief moment of his concealment, conscious of his separate existence, alone and apart from all other human beings. When discovered his shout of rejoicing shows how glad he is to return to the companionship and conscious recognition of others.\*

Of course, the faces, corners and edges of other objects must be found and counted until faces, corners and edges become important things, else the

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\*For further unfolding of this thought the reader is referred to an account of some real experiences along this line in the chapter on the "Coo-Coo Song" in "Two Children of the Foothills."

little exercise above referred to may sink down into the merest mathematical drudgery.

A small boy of five came into the kindergarten one morning with radiant face and sparkling eyes, crying out in joyful tones: "I have something for you! It's hard and long, and has four edges and two ends!" The precious object was held behind him, while he danced around in fond anticipation of the pleasure he was about to give his teacher, of whom he was very fond. "What can it be?" she answered, entering sympathetically into his pleasure. "Do show it to me". In proud triumph the hand which held the treasure was extended and in its palm lay a burnt match. And the Kindergartner accepted it as a gift of value, for had it not helped to unlock for the child the great world of form and its elements of faces, corners and edges?

This is but one of many similar instances which could be given to show that such exercises need not be barren to the child.

**SERIES OF THREE GAMES, THREE STEPS EACH.** These hiding games, which help the child to see and distinguish faces, corners and edges, are followed in Froebel's "Pedagogics"

by a series of three games, each having three distinct steps by means of which faces, corners and edges are re-emphasized and the utility of each is brought out. First the Cube stands on its *face* and the mother, or kindergartner, sings some such ditty as:



The little cube stands on its face,  
It does not move or run a race.  
It will do just what we say,  
And in its place will quiet stay.

Or merely a dialogue with the steady little Cube may be carried on. Next it is turned so that it stands on a *corner*, the mother's, or kindergartner's finger pressing upon the opposite corner, holds it in place, while she sings :

On one leg it can't be made  
To stand straight without our aid.

Or, again, it is stood on its *edge* and allowed to tumble over; again, it is placed on its edge and propped up by a box or book or some other object while the mother sings :

Lean the cube against the wall !  
Now it surely will not fall.

This placing of the cube on its face, its corner and its edge, emphasizes, through play, these details for the child; other objects should be placed on their faces, corners and edges, as approximate form, when used aright, help to strengthen the impressions made by the geometric type form, which is used as "the point of departure" so much talked of and so much misunderstood. Again different sizes of boxes, books, blocks, etc., may be used so that the child will learn the sameness of face, corner and edge through difference of size.

In the second series of games the cube or cubical object may have a string fastened to its face, its cor-

ner, its edge and swing slowly to and fro while some little ditty is sung calling the child's attention to the sameness of face, corner or edge through difference of position, such as :

Swinging, swinging through the air  
On its face so flat and square,  
See my cube now as it goes, etc.

This series of games is followed by another series generally known among kindergartners as "the *twirling* games." In this series the faces, corners and edges change their position by revolving at first slowly and then more rapidly until they begin to suggest new shapes made from the old, and by this time, familiar square face, right corner and straight edge of the cube. It may be stated in passing that these transitory shapes are not now dwelt upon, though they afterwards form the basis of the crystal forms and many approximate forms; but even now they give to the child a general impression of evolution of form. This series of plays is provided for by perforations in the cube, through which a stick may be thrust. The games usually begin by holding the cube between the thumb and fore-finger and twirling it round with the other hand, first on one corner then on another. Later on the stick is put through the perforation in the middle of its face and the cube is rapidly revolved while the mother or nurse sings :

With a stick through my center, I turn round and round,  
And look like a roller that rolls on the ground.

Again the stick can be pushed through the perfora-

tion from one corner to the opposite corner while the song changes to :

Put a stick through my corner and spin me around,  
Now look closely and see two tops now are found.

Or the stick may be thrust through the perforation from one edge to the opposite edge and some such words as the following may be sung :

Put a stick through my edge and give me a twirl,  
And now round and round in a circle I whirl.

A third variation of this third series of games with faces, corners and edges is to fasten a string to the eyelets on face, corner or edge and by the skillful untwisting and retwisting of the string, the cube revolves very rapidly—so rapidly in fact that all edges and corners disappear and, as the revolving slowly subsides, the child hails with delight the reappearance of them. Of the importance of their twirling, we will speak later. Also of the so-called “symbolic games” in which the cube is used to present a box, a house, a trunk, a table or other like object.

But now let us hasten on to the third form of the Second Gift, the cylinder, lest by too long delaying its appearance, we give the impression that it is not to be given until a perfect familiarity with the Sphere and the Cube has been obtained, which is not the case.

The first two forms are given separately in the early nursery games, but the cylinder appears before the kindergarten period and the three forms are always given together in the kindergarten in order

that the feeling of separation or contrast may not become too strong in the child's mind. It is like the "gentle shock" spoken of in Froebel's "Falling, Falling Song", wherein the child is allowed to feel his separation from his mother just enough to make him hold out his arms toward her for help—when "glad love lifts him back recalling".

This subject of how much of the negative or of the contradictions of life should be given to the child is too profound a subject to be treated of here. It is evident that the cube is to be given to awaken the idea of contrast of external shape (though its inner axial form is identical with the sphere), and then the cylinder is added to give in a miniature childish fashion through form the "Mediation of opposites."

Before entering into a fuller exposition of the Second Gift we will again have to speak of the need of a better chronological arrangement of the writings of Froebel. We quote this time from Dr. Snider's "Psychology of the Play Gifts" in order to show Froebel's struggle to select the right intermediate form or forms between the sphere and the cube of the Second Gift.

#### "CHRONOLOGICAL GROWTH OF SECOND GIFT."

I. Jena, 1799-1801. Schelling's influence. The dark brooding idea of unity in man and the world begins to ferment, uttering itself in a vague philosophic nomenclature. Froebel was nineteen years

old when he left Jena, after a stay of nearly two years altogether.

II. Gottingen, 1811. He finds an object which gives reality to his idea, namely, the Sphere, in which he sees the oneness of spirit and of nature. Thus his inner thought has found an outer form for its bearer. Twenty-nine years old.

III. Keilau, 1821. He now shows his insight into the pedagogical purpose of the Sphere, which is to become a grand means of human education. He writes, "The law of the Sphere is the fundamental law of all true adequate culture of mankind". Thirty-nine years old.

IV. Education of Man, 1826. In this work the Cube is added to the Sphere and both are the results of force indwelling in nature, which is especially seen in the production of crystals, all of which is educative. Forty-four years old.

V. The Kindergarten, Blankenburg, 1837. The Sphere and the Cube have reached their educative purpose in the Second Gift, being employed for the unfolding of the child mind. They are opposites, yet in unity; but the Cube is not distinctly derived from the Sphere. (See Froebel's Essay on the Second Gift.) Fifty-five years old.

VI. About the Year 1844 (Hanschmann in Froe-

bel's Leben, 327) the intermediate forms are added, namely the cylinder and apparently the cone with it. Sixty-two years old.

VII. His last statement (1852) drops the cone and mentions the Sphere, Cube and Cylinder as three forms of the Second Gift, which has remained as he left it down to the present. Seventy years old.

Thus we come to the Second Gift as it now stands and is used in the kindergarten. This trinity of form has been placed by the educators of Germany over the grave of Froebel at Schweina as the best material expression that can be given to his tremendous idea of the "Science of Form" and the growth of the spiritual nature of man through a clear perception of this "Science of Form", including as it does a realization of the oneness of the source of all forms and the ever advancing evolution of one form out of another. This evolution shows the inner generic nature of form as well as its outer shape.\*

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\*The following is an extract from a letter on Form Study sent to Krause, on Krause's birthday. It has not yet been printed in English.

"The observation of objects as consideration of form gives as its final stage, surface (planes), edges (lines), corners (points). If you now contemplate in reciprocal comparison, these three (which are left to you as final out-turned conditions of form and figure) you will be met by the fact that points and planes are pure opposites. The former is, as it were, the representation and expression of the highest union and drawing together; the latter is the perceptible and completely surveyable, greatest extension of the force that works within or upon it. Between these two, connecting and uniting them, is the line which outwardly limits point and plane; since two lines touching one another (the ends of one if it be a curved line) produce a point, and lines, the ends of which touch one another (one if curved, but if straight at least three). Therefore, the line is the first and most apparent means of representing form and figure, and of perceiving and recognizing their laws; and this so much the more since the line in itself conditions two views; first, it may be considered as having become perceptible, as existent and external; but second, it may be looked upon as in a constant state of being formed. In the latter respect the line appears to express the direction in which the force works.

With the three forms of sphere, cube and cylinder the number of games that can be played is, of course, largely increased. For example, several sizes of spheres, cylinders and cubes may be given at once and the children will assort them according to form and size. The names of "cube-family", "sphere-family" and "cylinder-family" are frequently given to these groups by the smaller children of a kindergarten. In such cases it is well to let them select the father, the mother, the oldest brother, etc. Though it is not well to dwell too long on this symbolic play with these type forms, as there is too much definite need for using them in other ways.

Another game, by means of which the three forms are incidentally compared, is to let first one child and then another take the sphere (or the cube or the cylinder) and walk around the room finding objects that are the same shape, as, for instance, the door-knob, the tassel on the curtain, a cup, another child's

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I certainly need not state to you, who are a thinker, that this *dual view of the line* as already formed and as being produced at every instant, necessitates two views of the science of form and formation. In the one, the forms and figures are regarded as abidingly, outward *accumulation and aggregation*, and formed as such; in the other view they grow forth in *accordance with inner laws and limitations* in the instant of their activity.

These two views of the science of form and figure as a means of instruction and subject for teaching are related to *one another as the solid figure is to the life figure*, as inorganic to organic, as mechanics to dynamics.

As in numbers the accumulation view, addition and subtraction, is to that of increasing according to inner laws, multiplication and division, therefore, I do not know how to indicate the two sides of the consideration of form more briefly than to call them the *heaping up and developing view* of form and figure. The two views belong together and are reciprocally explanatory, as *outer and inner*, or in number so-called *arithmetic and geometry*.

But as in nature the solid figure (crystals) appeared earlier than the life figure, the heaping up view of the science of forms and figures precedes the developing one. This is demonstrated by our school instruction which treats of the science of developing forms and figures, but knows nothing of that of developing space (that of size included). You will remember that when you lived with us that I repeatedly told you that the whole system of instruction, as well as science, lacked one important

head, etc., or the table, the chair, a pile of books, a box, a cupboard, etc., or the legs of the chair, the flower jar, a tumbler, a bottle, another child's arm or body, the trunk of the tree seen through the window, etc. The fun of this kind of a game is increased if the mother or kindergartner "keeps tally" by making a mark on the blackboard for each new spherical, cubical, or cylindrical form discovered, or, better yet, if she draws a picture of each object. Next the children can bring objects from home that approximate one or the others of these forms, as tomatoes, turnips, carrots, bananas, sticks of kindling wood, boxes, etc. After a sufficient number of sense impressions have been made, the children may be given clay or wax or a mixture of equal quantities of salt and flour, or dough, or some other plastic material and be allowed to make something that reminds them of a sphere, or of a cube, or of a cylinder. If the play has been childlike and has been sympathetically entered into thus far, it is astonish-

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side which I then called dynamic mathematics. This statement enlightened you even then, but you will now have a clearer idea of what I comprised in it. Although several years have elapsed since that time and I have worked upon and tested this subject a great deal, yet my convictions on the point remain firm. Indeed, I have been repeatedly led back to the truth of this statement.

You see, my friend, we have now come to the point from which (when you were here) I proceeded with the declaration that the science of forms and figures is in union with that of size, contains within it the whole science of space, and that in the extension which we give to it, it includes the recognizing and representing sides. The recognizing side is that which deals exclusively with the recognition of the laws of form, figures and size, and in which, therefore, representation is only subordinate. The representing side is that which in the same way deals only with the representation of the forms and figures themselves; and the recognition and the insight into the laws of form and size are only subordinate and incidentally helpful. The first comprise the instruction in form and size (the science of space) in its two directions of heaping up (that of rest) and the developing (that of motion). The second embraces drawing and modeling likewise in two directions, the first being limited more by outward, and the second by inward laws.



ing what a variety of forms are now easily classified and modeled by the eager young artists, and the great work of organization in the form world has reached a definite degree of growth.

Various exercises with the Hailmann Second Gift beads may now be introduced. They may be assorted according to color, all the red spheres, cubes, and cylinders in one saucer or box, all the blue ones in another, etc., or they may be assorted according to forms, all the spheres together, all the cubes, all the cylinders, or they may be placed in rows on the table, or better still, strung on a shoe string according to some chosen numerical order, as, for example, two spheres, then two cubes, then two cylinders, or three spheres, three cubes, three cylinders, etc. Such exercises are for children of a kindergarten age. The older ones take great pride in being able to string more complex combinations of numbers, such as, five spheres, three cubes, one cylinder, and repeating the same combination a number of times without making a mistake. They will give each other new combinations and in many ways give evidence that these exercises are neither too taxing nor are they lacking in interest. Many really pleasing effects may be obtained by stringing the scarlet haw, the brown acorn cups, white pop-corn, crimson cranberries, yellow seeds of muskmelons, etc., etc., especially if these are strung in numerical order. The strings of glass beads one collects during travel among primitive nations are often excellent in color effects and suggest

many attractive ways in which these stringing of small natural objects may be varied.

All the games that have been played with the faces, corners, and edges of the cube may be repeated with the curved and flat face of the cylinder and its curved edge, and various little songs may be sung in time to the twirling, such as:

(CYLINDER—Music and words, Hubbard Book, Page 115.)

If on my flat face you turn me around,  
I'll look like a roller that rolls on the ground. Repeat.

If on my round face you'll spin me you'll see  
What a nice little ball is hidden in me. Repeat.

And last but not least, like a top I'm found,  
If with a stick through my edge, you spin me around.  
Repeat.

The singing, however, is not a necessity. The children may watch and clap their hands when the cylinder appears in the revolving cube, or the sphere in the revolving cylinder.

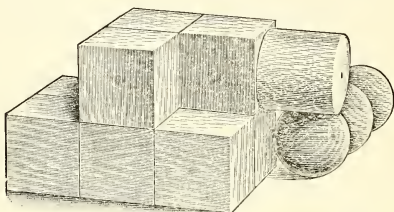
The other forms, the cones, conoids, etc., are merely transitory forms that show the disappearance and reappearance of the faces, corners, and edges, and should not be dwelt upon at this stage of the child's development in observation of form. Yet they have their educational value. Froebel, says, "It is early important for the human being, especially as a child, that the essential perceptions of things should be repeated frequently under different forms, and if possible in a particular order so that the child may early learn to distinguish the essential from the

unessential and accidental and the abiding from the changing—unnoticed and unrecognized though the phenomena are to the child, yet the impression of them will be certain and firm, and this so much the more when the repetition has been precise and clear. They also prepare the child for the crystal forms which are to be given later.

Through these and similar games the external differences and resemblances between the three type-forms of sphere, cube and cylinder become familiar to the child; namely, the cylinder and sphere have curved faces and the cylinder and cube have flat faces. The cylinder like the cube has edges, but unlike the cube its edges are not straight but curve like the surface of the sphere.

This introduces various games of activity and rest. The cylinder can roll like the sphere, or stand firm like the cube; all of these contrasts ought to be discovered by the children in their use of the three forms. The elements of movability and stability are best brought out through various mechanical uses of the Gift, sometimes with the box that contains them, sometimes without it. They may serve as a pulley with weights on either side, as a wagon with wheels underneath, as a churn with table near by on which is a roll of butter, as a wheel barrow, as a locomotive engine with coal box and smokestack. Various other mechanical contrivances such as the three fundamental forms of mechanics, the wheel, the cylinder and the double cone, are all shown in

the Second Gift. In some of these forms more than one Second Gift will have to be used. This gives occasion for group work: see Fig. 1; as well as the beginning of knowledge of mechanical laws.



No. 1. Showing group work with second gift, making the mechanical turn of a water mill.

If circumstances are such that the mother of the family or the kindergartner in a new district cannot get enough of the Second Gifts for all of her children, spheres, cubes and cylinders may be made, with a little practice, out of paraffine, slightly warmed while being molded and then allowed to cool and harden, or with the mixture of equal quantities of salt and flour, before referred to, though the firm wooden forms are preferable and nearly any joiner can make them.

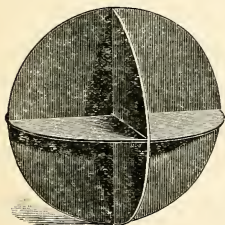
Another interesting exercise is to place the sphere on the table and then let the child put a chalk point or dot on the table just where the sphere touched its surface. Then lay a cylinder on its curved face and let him draw a line where it touches the table. Then a cube may be placed on the table and he can outline

and then fill in the square surface where it stands on the table. Thus, again, point, line, and surface come out in a new and pleasing way together with the solid forms which arise from them.

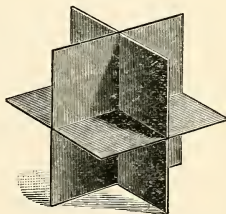
### EXTENSION OF THE SECOND GIFT.

#### USE OF THE SECOND GIFT IN ADVANCED GRADES.

All the foregoing games are based on the *external* contrast and resemblances of three forms. We now come to an important part of our study of the Second Gift which is usually called "the extension of the Second Gift." As has been before stated Froebel regarded form not alone from the *outer limited shape* of an object, but, also, from the *inner genetic* structure of each form.



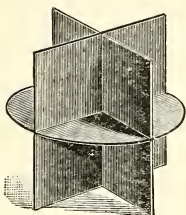
No. 2. Showing skeleton forms of the Sphere, by means of the fixed relations of its three intersecting planes.



No. 3. Showing skeleton form of the Cube, by means of the fixed relations of its three intersecting planes.

In other words, he would have the older children

learn to recognize and comprehend the relation of



No. 4. Showing skeleton form of the Cylinder, by means of the fixed relations of its three intersecting planes.

the axial planes of each solid. This opens a large field of profitable instruction for primary and second grade manual training classes. As has been already shown, the three axial planes of the sphere are at right angles to each other, as, also, are the axial planes of the

cube and cylinder. (See Figs. 2, 3, 4.)

So far as our knowledge goes no especial effort was made in America to bring this inner similarity of the structure of the three externally different forms, to the child's sense-perception, until Miss M. M. Glidden, of the Kindergarten Department of Pratt Institute, cut circles and squares of stiff paper, and by a most ingenious device made incisions in them; by joining three circles together illustrated the three axial planes of the sphere (see Fig. 2); and by joining three squares illustrated the three axial planes of the cube (see Fig. 3), and by joining two squares and one circle, illustrated the three axial planes of the cylinder (see Fig. 4).\*

The great psychological significance of a knowl-

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\*Miss Glidden also made a number of other interesting and suggestive extensions of the Second Gift which were indicated by Froebel (in his chapter on Kindergarten Occupations in "Education by Development," pages 342-343), but had never before been constructed.

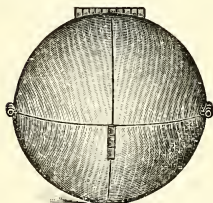
edge of the structural relations between these forms did not, however, seem to awaken the kindergarten world, at large, to the real magnitude of Froebel's thought, until Dr. Denton J. Snider published his book on the "Psychology of Froebel's Play Gifts". In this book he showed the necessity that the inner structural nature of each form should be uttered or outered if it were to correspond to the child's inner development, which to become complete must utter or outer itself in word and deed. In the chapter on the Second Gift, in the book just referred to, we are shown how the invisible but all-controlling central point of the sphere when divided according to its three dimensions of length, breadth and thickness, becomes the eight visible square corners of the cube; how the three invisible diametral lines of the sphere, dividing, as they do, four times, when outered become the twelve visible straight edges of the cube, and how the three invisible axial planes moving each in the two opposite directions, become the six visible flat surfaces of the cube. In fact we cannot really think of the structural nature of the sphere without bringing forth, *in thought* at least, the cube as its outer, or opposite form. This same chapter also shows how the cylinder, when structurally considered, is the exact central form of the series of forms by means of which we return from the cube to the sphere.\* It is an extremely interesting and sug-

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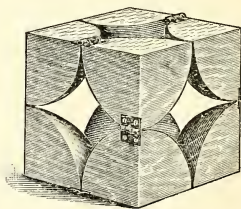
\*These three are the pivotal forms and are therefore the only three that are given to the young child; though it is an interesting exercise for the older children as well as for the young ladies in the training classes to fill in the series of forms.

gestive study for older children to make these intermediate forms, especially the cone, pyramid and prism, and to see their relation to the sphere, cube and cylinder, thus they gain a knowledge of the evolution of form obtained in no other way. This clear cut, psychological explanation of "the developing view of form" seemed to cause a revival of creative energy among the kindergartners, and Gift after Gift poured in from north, south, east and west, each illustrating some part of the psychological process, as nearly as form can illustrate thought.

We give here only those that, in our judgment, may be used to advantage with young children.



No. 5. Showing Hinged Ball, closed, with its axial division indicated, before the elements of form within are brought out.



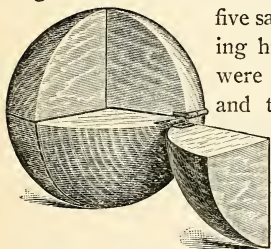
No. 6. Showing Hinged Ball, turned inside out with its invisible center, diametral lines and axial planes changed into the corner edges and faces of the Cube.

First of these is the "hinged ball" (see Fig. 5). This was sent by Miss Florence Lawson, of the Los Angeles State Normal School of California. The simplicity of this device at once presents itself. After experimenting with it in Chicago and elsewhere, experience has shown that the child of three years



or four years is not ready for it and almost invariably tries to shut it up, seeming distressed and annoyed when it falls open. Whereas the children of five and six are usually delighted with it. Transforming it from sphere to cube (see Fig. 6), and from cube back to sphere many times with endless satisfaction.

One boy of six after examining it for some time, opening it and shutting it again and again said meditatively, as if speaking to himself, "I knew that apples had seeds inside of them, but I never knew before that balls had corners inside of them." He was evidently struggling with the great genetic principle that governs all growth, be it that of nature or of geometric construction of form. A little girl of



No. 7. Showing Hinged Ball with one section turned out.

five said the corners were playing hide and seek when they were shut within the sphere and then opened out. One little fellow insisted on holding on to a corner until the other seven parts had been closed. He then let go of the corner and lean-

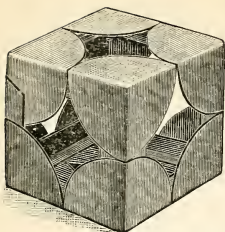
ing back in his chair said, "Now I know where the corners are when you can't see them". (See Fig. 7.) "Where"? asked the kindergartner. "In the heart of the sphere", answered he. When one half of the sphere had been opened and turned back a little girl

exclaimed, "A cradle! a baby's cradle". Another called it when half opened "A boat". Both saw the rocking motion that was then made possible. A number of life-forms were suggested by the children as they played with the new play-thing.

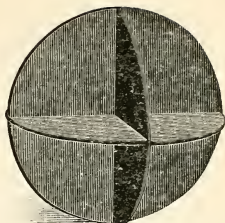
Another child after repeated experiments in cutting open various kinds of fruits and vegetables, being given the divided sphere, remarked with delight, "Every thing has things inside of them, haven't they"? Notwithstanding the clumsiness of his grammatical expression he was on his way to the comprehension of the analogy which all material things bear to spiritual things, which caused St. Paul to exclaim: "The invisible things of God, from the creation of the world, are clearly seen, being understood by the things that are seen".

Many more anecdotes of a similar character could be told concerning the experiences of children with this new Gift. As the book is, however, not a book of personal experiences, but of general suggestions we refrain from giving them, leaving the kindergarten to have her own experiences with each new class of children to whom she presents this new Gift.

This hinged ball was followed by a very ingenious invention constructed of thin rubber so that the child could punch in the corners of the cube until they became parts of the center of the skeleton sphere, or vice versa, namely, push out the corners from the center. (See Fig. 8.)

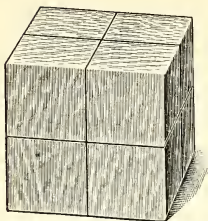


No. 8 *a*. Showing the rubber gift with its corners pulled out, thus making outline of the Cube.



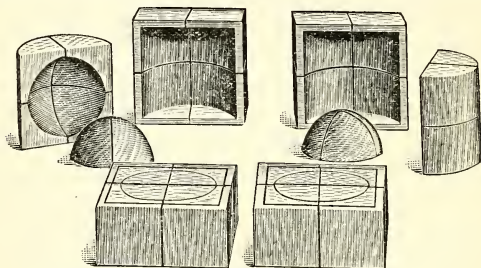
No. 8 *b*. Showing the rubber gift with the corners pushed in, making the skeleton of a sphere.

Then came a divided cylinder that could turn inside out and make a cube. Following the divided cylinder came the curvilinear Gift; these last two will be treated of more fully in a later chapter of this book. One very interesting division of the cylinder so that three sized arches could be made was sent by Miss Mabel Wilson, teacher of Gifts and Occupations in the training class of the St. Louis Public Schools. Though too complex for the kindergarten it could be used admirably by older children. A number of others were sent in which the divisions were too complex for the kindergarten or even primary grades, still they show that architectural elements can be so organized as parts of the geometric figures from which they are derived. We give here one more invention made by Miss Monte Harvey of Cleveland, Ohio.



No. 9. Showing the external appearance of the gift containing Sphere, Cube and Cylinder.

It will interest the kindergarten and children of advanced grades, as it shows so distinctly the inner relation of the three forms of the Second Gift. (See Figs. 9 and 10.) As yet but little use has been made of it as a play-gift.



No. 10. Showing internal appearance of Miss Harvey's gift.

Thus we see that the child even in his earliest experiences may begin to learn through play the ever unfolding marvel of creation, namely, that he is surrounded by a world of organized forms, from the minutest microscopic deep-sea dredging to the vast revelations made by astronomers. Through all this organization of form runs an exact law, so that the oceanologist knows by the geometric shape of his almost invisible sea-dredgings from what locality they came. A generation before it takes

place the astronomer predicts an eclipse. With such evidence of Infinite Thought behind all created things does not the earnest heart bow in reverence before the Being whose Law is Order, as well as whose Life is Love? And is not such reverence the foundation of all true religion?

#### POINTS OF ANALYSIS OF THE SECOND GIFT.

1. Description of the gift.
2. Comparison of this gift with the first.
3. Salient characteristics of the gift.
4. Forms illustrated.
5. Object of the gift.

## CHAPTER III.

THE THIRD GIFT.

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(The Third Gift is a two-inch wooden Cube, divided into eight one-inch cubes, by the intersection of three diametral planes.)

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**FROEBEL'S PSYCHO-  
LOGICAL VIEWS  
OF HIS GIFTS.**

We are told again and again in the writings of Froebel that the aim of his educational method is secured when the child finds himself at the same time a separate individual and a member of a higher life unity; the purpose for which these plays and gifts are created is to assist parents and children to obtain this higher view of life. In other words the child should have play things given to him which will, in a miniature way, show parts and wholes, and also the relation between them; he teaches that the whole is not complete without each of its parts, and that each part is dependent upon the whole for any real significance or value.

The mother or kindergartner is to so play with the child as to lead him not only to see this right relation between the whole and its parts in his blocks, but to love it, and look for it elsewhere. This reveals the psychological view of Froebel, and no parent or teacher can understand the true significance of

these play-gifts unless he or she is, to a certain extent, a psychologist and clearly comprehends the process of mind by means of which the sensations produced by objects of the outside world are slowly but inevitably transformed from mere vanishing sense—impressions to permanent and easily recalled mental images. By a still more subtle process these mental images are changed into symbols and signs with new meanings put into them by the mind itself. It is thus that the hard material facts of the outside world become transfigured, as it were, into vehicles by means of which the spirit of man transmits the richest treasures of the inner world to its fellow-men.

Not only does all art prove this to be the method of the mind's activity, but the common every-day language used by the most unthinking person demonstrates the same. "I don't care a feather's weight", says the young girl as she tosses her head, all unmindful of the quick transformation she has made from the image of the light feather floating in the air to the entirely mental act of non-heeding of some one's opinion. We speak of a "cool reception", a "warm welcome", "square dealing", "crooked conduct", "dark deeds", etc. In fact, all parables, similes, riddles, puns, fables, proverbs, apologues, personifications, myths, and allegories are evidences of this process of mind. This poetic imagery is the only vehicle of expression suited to the deeper emotions. Men may argue and reason in language

from which the sense impressions have died out, but when the heart is deeply stirred, and some supreme joy of life lifts up the soul, or some great sorrow crushes it, we perceive the mind in the very act of seizing the sensations of the outside world and translating them into "tongues of fire", that it may appeal to some fellow soul to come and share in the joy or sorrow, too great to be borne alone. Read the psalms of the Bible! Recall the invocations or imprecations of Homer's heroes! and see how the mind uses its mental imagery to pour forth its emotional life. Shakespeare's and Goethe's master-pieces give added proof that all poetry is dependent upon this process of the mind. Dante's "Divine Comedy", the sublimest spiritual picture of all the ages, would be nothing without this wonderful power.

**PRACTICAL VALUE  
OF THE SAME.**

And yet, well known as these facts are, the educational world did not awaken to their practical value until Froebel in his almost agonizing efforts to emphasize the solidarity of the race, the oneness of the source of all things, found his language inadequate, and turned to "dumb objects" to help him provide for the little children such play gifts and games as would give sense-impressions that would quickly and unerringly be transformed, all unconsciously it may be, into the right mental imagery for the spirit to use in its communings with itself, or in its utterances for others.



This is not "mysticism" but a plain, easily tested, psychological fact used in the most definite and practical way, as we can see by even a limited familiarity with the Third Gift.

**HOW THE INSTINCT  
OF INVESTIGATION  
IS TREATED.**

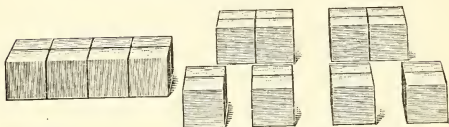
Almost the first thing one notices about the Third Gift is that it is easily pulled apart and just as easily put together again, thus satisfying the inborn instinct before referred to in all children, to take to pieces their toys, a misunderstood instinct which has caused countless tears on the part of the child and needless anxiety on the part of the parent; for what seems to be heedless or willful destruction, is in reality, the instinctive desire to investigate the construction of each new object, in order that transformation may take place. Without this intuitive desire to change the ready-made form there would be little or no creative and constructive work in the world. The toy doll or the horse can, it is true, be pulled apart, but alas! it cannot be put together again, and the creative impulse of the child receives a serious check, whereas, the eight little cubes of the Third Gift may be pulled apart and put together as many times as the childish heart desires.

**FIRST USE OF  
THE GIFT.**

The simplicity of the forms of the blocks suggests with each movement a new resemblance to some other form (see Fig. 11), which illustrates the following rhyme:

Father had a garden bed  
Twice as long as wide,  
And mother had two flower beds,  
One on either side.

We children shared the garden, too,  
And loved it more and more,  
Ours were as long as father's bed  
Divided into four.



No. 11. Showing the third gift divided into halves and fourths, making three sized garden beds.

The reader will see that in reality the gift has been divided into halves, and fourths.

And if the child is very young the mother may materially aid the growth of conscious perception of the forms about him by naming his almost aimless re-arrangement of the blocks.

If he piles them up she may call them a post, a tree or any other slender, upright object; if he lays them one after the other on the table, she may call them a fence, a car, or some similar object with which the child is familiar; if he places them side by side she may suggest that they are a table, a sidewalk, or like surface. She must take care, however, before she suggests a name, always to ascertain whether he has some form in mind, or is merely moving the blocks for the joy of seeing their appearance change. This moving of his blocks, putting

them in different places on the table or floor, is the first step toward conscious creative work, and as such, is valuable, although a definite aim in the use of the blocks is to be developed as soon as possible. It is surprising how soon the child of two years catches the purpose of the Gift and begins to build with it, calling gleefully upon mother or nurse to see his "choo-choo" car, his house, or chair, or man. The joy of the artist is already his, what seems a crude and even absurd resemblance to us is enough to satisfy him, and woe betide the stale and withered soul that dares to laugh to scorn the creative impulse! It is far better that one should strike the child a blow on the head than risk stifling this divinely ordained utterance of the dim, but awakening power of the young soul to reproduce or express the images from the world within. The majority of mankind struggle all through life from lack of power to outer or utter their inner sentiments, dreams, or ideals,—beating, like imprisoned birds, against an iron cage, in which reserve, criticism, or fear has shut them.

Misunderstood souls are they—forever longing for recognition, forever losing the priceless privilege of enriching the world with their ideals, of strengthening it with their inner experiences!

Simple as these eight little blocks seem to be they are, indeed, "the child's joy" when once sympathetically introduced to him.

The indoor life of the child, or his outdoor

life may be reproduced. These vary, of course, with different experiences. Another large field of mental images may be stored in the child's mind by allowing him to reproduce pictures of scenes and experiences that have come to him vicariously through stories, and thus the impression made by the story will be increased.

**THREE WAYS OF  
GIVING THE  
THIRD GIFT.**

It may be well before passing to the next topic to state that there are three ways in which new forms, or sequences of forms may be given to the child according as his age, or rather his stage of development, demands. Each new Gift, after an orderly presentation of it has been made (in order that the child may see it as a whole) is given to him to be used *in free play*, so that he may discover for himself as many of its possibilities as he can. Experience, however, has shown that he soon exhausts his own limited power of observation and either calls for help, or pushes the blocks to one side as useless things. Before this stage is reached the skillful kindergarten has discerned its approach, and has thrown in some suggestion which adds vividness, or a new idea, to the play.

There comes the time, however, when her superior knowledge of the possibilities of the Play-Gift, as well as her knowledge of what facts it is best for the child to learn, necessitates her definite control of his play. This may be done by joining in the

play and letting him *imitate* the form she makes, if he is very immature or lacking in ideas. By this kind of play she introduces him into an orderly use of all the parts of the Gift in each new object made, and also leads him to build one form out of another without destroying the forms, thus guiding him into transforming rather than destroying. Both of these points are important in the training of the child towards mastery of the outside world. As the child becomes somewhat familiar with the blocks a description of what is done can accompany the movement of each block, as for example: "I take the two front blocks on top and place them on the top of the two blocks just back of them". This said in a low, quiet tone as the mother or kindergarten moves the blocks, accustoms the child to associate the words, descriptive of position and number, with the movement of the blocks.

**VALUE OF  
DICTATING  
EXERCISES.** This is a good exercise for children who are mentally slow, or for children of foreign parentage where the English language is not spoken in the home; as the object and its movement are before them to help them interpret the words. There is perhaps no better means of helping the child to clear, concise language than this method of giving to the child the new forms, or possibilities of the Play-Gifts, usually known among kindergartners as "by dictation", a much misunderstood term, which merely means, controlling the child's attention long enough to give

him, in simple and correct language some new movements of the blocks.

The value of this kind of work cannot be over-estimated, though the use of it may be easily abused. Nothing so aids the child in accurate observations and clear, strong, mental images, as definite language. Nothing brings more quickly a confidence in his own power to do, than a realization that he can describe in exact language just what he wants to have done. Therefore these exercises in dictation are given first by the kindergartner and then by the children, one to another. The delight which they take in doing this is, in itself, an answer to the criticism that it is forcing upon the child mental activity which is beyond his power; the exercise must, of course, be simple, at first, but it can gradually be increased until the child has a perfectly distinct idea of any arrangement of the blocks he may wish to make. Again, at the risk of boring the reader, let us repeat that these same dictations of the positions and the number of blocks to be used on this side or that, may be, and should be, given with other objects, as well as with the blocks, though the simplicity and uniformity of the shape of the cube, make directions in positions and number less confusing than they would be if given with shells, acorns, beans, or other objects where difference of color or size would distract the attention.

The third method of giving the child new ideas of the possibilities of the Third Gift, is by means of

*suggestions.* This requires some knowledge of the Gift through previous handling of it. Some object to be made or some geometric form to be emphasized, or some arithmetical process to be learned is given in the following or some other similar way: "Can you change your Cube into a chair which shall have a back two inches high, and two inches wide, and a seat one inch high"? Or "Make me two tables of the same size". Or "Show me four posts, now two tall posts", etc.

For more advanced children various problems in simple geometry or arithmetic may be suggested. The children often make up these problems for each other. This requires the holding of the mental image in the mind until its proportion can be described, and if not given too long at a time, is excellent mental training.

It must always be remembered that games, stories, songs and hand-work are also part of the morning program and that these exercises with the Gifts do not take more than fifteen or twenty minutes of the entire session, according to the age of the children. Again, it must be remembered that the building Gifts are not intended so much to illustrate the real or vicarious experiences of life, as to acquaint the mind with the general properties of matter. Chalk, clay, pencils, or scissors are the best instruments for reproducing actual or imagined objects or scenes. By handling and building with the simple Play-Gifts of the kindergarten the child becomes ac-

customed to the most essential concepts of matter, such as form, size, number, color, texture, surfaces, edges, corners, etc.; these are here presented to him in the most concrete form possible. Each of these fundamental properties of matter is brought forth by some one of the Play-Gifts, and is, of course, to be re-emphasized by other more familiar objects. This repetition must never be omitted, else the true purpose of the Gifts is violated, and the child does not get the development into a conscious organization of the outside world which was intended.

#### **DIVISION OF THE THIRD GIFT.**

Froebel's insight into the fundamental nature of form, already explained on pages 65-66, caused him to divide the Cube, the first of the building Gifts, once according to its length, breadth and thickness. Later on we shall see this same cubical form divided twice and even three times according to its axial dimensions. In each of these cases the parts, thus divided, have a well defined arithmetical relation to each other, namely, halves, thirds, and fourths. Irregular and arbitrary divisions of the Cube or any other form, would leave only vague, unsatisfactory impressions on the child's mind and would not assist him much in the intelligent investigation of the world of nature, as all the divisions and subdivisions of crystals, plants, and animals are according to mathematical laws; nor would the mere haphazard division of his play materials help him in constructive and creative efforts of his own, as all



building is also based upon these same mathematical laws.

We trace the development of the divided cube of the Third Gift back to the undivided cube of the Second Gift, and this, in turn, may be traced to the transitorily made outline of a cube which appears when the divided sphere is turned inside out.

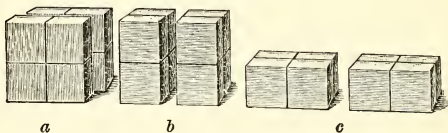
With this Gift the child may easily be led to see, or will discover for himself, that the inside of the cube can be turned outside, and the outside become invisible. This is an important step in the investigation of nature. A few simple, playfully given examples soon give the child familiarity with the first necessary organization of form, namely, distinct impressions of length, breadth, and thickness.

**WHY LARGE BOXES OF MANY BLOCKS ARE NOT BEST.** Care must be taken that the blocks always come from the box as a whole. This is most easily done, by turning the box upside down, then drawing out the cover, and carefully lifting the box off, when the eight little cubes will stand before the child as one whole. The divisions which follow will then be seen by him to be parts of the whole, and there will always be present in his mind the consciousness that he can at any time reunite them into a whole. In fact, so essential did Froebel consider this relation between a whole and its parts, that after each dictated exercise or free play, he would have the child again rebuild the cube before putting the blocks away; therefore large

boxes of blocks, from which the child may take many, or few, as best suits the whim or caprice of the moment, lose this important relation between a whole and its parts as well as the wholesome lesson of orderly reconstruction.

**VALUE OF THIRD  
GIFT IN CON-  
STRUCTION WORK.**

With the third Gift the child takes a new step forward and begins really to transform and construct. At first, especially with the young child, the divisions are usually given with some rhyme or story which help to bring out the fact that the cube is divided into halves or two equal parts, from right to left, (see Fig. 12*a*); or top to bottom, (see Fig. 12*b*); or back to front, (see Fig.



No. 12. Showing: *a*—Cube divided from right to left. *b*—Cube divided from back to front. *c*—Cube divided from top to bottom.

12*c*); as for example a play may be suggested in which different kinds of boxes, or trunks, open in different ways; or the older child (three or four years of age) will take delight in obeying a quick short command, spoken in a military tone, as for instance: "Attention"! "Divide your blocks from right to left". "Unite them again". "Back to front". Or, "From top to bottom". "Unite them again".

The children soon learn to give these directions to one another, and take great pleasure in being able to follow directions thus given by another child.

**LIVE AND DEAD PLAY.** All such play is to be accompanied by the same exercises in other materials, as for example: "Cut the paper from top to bottom". "Draw a line from right to left". "Swing your arm from back to front".

We give below a series of exercises in dictation which show how the three directions may be made more definite in the child's mind:

**LIFE FORMS—SEQUENCE NUMBER ONE, EMPHASIZING UP AND DOWN.**

1. Divide the cube in halves from right to left and place the front half on top of the back half.
2. Again divide this form from front to back and place the left half on top of the right half.
3. Place the two top cubes on the table at the right of the form so that they will touch the two right lower cubes.
4. Place the two cubes which are now on top in a similar position at the left of the form.
5. Place the two cubes which are now on top in a similar position at the right of the form.
6. Divide this form in half from top to bottom and place the top row in front and touching the bottom row.

7. Divide this form in half from front to back and place the right half on top of the left half.

This play may represent forms of life. For example: The first form may be called a four-story building. The second form may be called a high chimney for the building. The third form may be called a church. The fourth form may be called a factory. The fifth form may be called a city market. The sixth form may be called an apartment house.

By weaving the sequence of forms into a story connected with his own life the play can be made one of unending delight to the child, or better still the child may name the form himself.

LIFE FORMS—SEQUENCE NUMBER TWO, EMPHASIZING BACK AND FRONT.

1. Divide the cube from right to left into two halves. Lay these halves down from front to back in such a position that they will touch, making a form four inches long, two inches wide and one inch high.
2. Change this form by one move from right to left into a form eight inches long, one inch wide and one inch high.
3. Change this form by one move from right to left into a form four inches long, two inches high and one inch wide.
4. Change this form by one move of four blocks from back to front and one move of four blocks from right to left into a form two inches high, two inches long and two inches wide.

The forms of this sequence as in the first sequence may be named by the children or kindergartner, in connection with the children's own experience, as for example: 'The first form may be called a flower bed. The second form may be called a flower border. The third form may be called a garden wall. The fourth form may be called a tool house.

LIFE FORMS—SEQUENCE NUMBER THREE, EMPHASIZ-  
ING RIGHT AND LEFT.

1. By two moves—one move of the four front blocks of the cube two inches to the right—and one move of same blocks one inch back, make a form four inches long, two inches high and one inch wide.
2. By placing the two middle top blocks one to the right and one to the left on top of the right and left end blocks make a new form whose ends will be three inches high, one inch wide and one inch long, and whose middle will be one inch high, one inch wide and two inches long.
3. By placing the two top blocks at the ends one inch to the right and one inch to the left make a new form whose middle is three inches high, two inches long and one inch wide; and whose ends are one inch high, one inch wide and one inch long.

4. By placing the two top blocks on the table one touching the right end and one touching the left end of the form, make a new form whose middle will be two inches high, one inch wide and two inches long and whose ends are one inch high, one inch wide and two inches long.
5. By placing the two blocks at the right and left ends one inch forward so that they will be two inches high, make a new form, whose middle will be two inches high, one inch wide and two inches long, and whose ends are two inches high, one inch wide and one inch long.
6. By moving the ends toward each other one inch make a new form two inches high, two inches wide and two inches long.

No. 1 may be called a tenement house. No. 2 may be called a factory. No. 3 may be called a mill. No. 4 may be called a car house. No. 5 may be called a school house with added ells. No. 6 may be called a police station.

Any such sequence may, of course, be given by imitation or suggestion, or better still be made from the individual forms built by different children in their free play.

Such exercises as these may become the most arbitrary, profitless waste of time imaginable, or they may be made so full of vital suggestiveness that the child will feel growing within him the comprehension of the process of form, and will not only respond with delight and pride, but will continue of his own

accord, the observations of length, breadth and thickness, in the objects about him, and thus he will advance slowly but surely, in the reading of the great language of form, which, in its way, introduces him into as large a world as does the language of words.

**IMPORTANCE OF LANGUAGE OF FORM.** All artistic creative power and all sympathetic appreciation of art depend upon the consciousness that

form may express the most glorious and exalted thought man can conceive. The many utilitarian inventions which have freed man from being merely the hewer of wood and drawer of water and which have given to him strength and leisure to develop his higher possibilities, have all arisen from the inventor's mastery of form and his consequent use of it to dig, to lift, to draw, to push, to crush, to bind together, or to scatter afar, as the case may require. Again a nice discrimination of the suitability of any form for the use to which it is to be put would soon do away with spindle legged chairs, twisted legged tables and a thousand and one monstrosities that offend the eye in half the houses in our land, and that give the child a discordant environment, although he may be unconscious of it.

But more than this, an accurate and thorough training in nice discriminations of the relation between function and form leads gradually toward the development in the human soul of that more subtle discrimination, which is usually called tact, namely a discernment of the suitability of conduct towards the

rest of mankind. We must ever remember that good manners are a ticket to the dress circle of society. Matthew Arnold calls them the "minor morals". To some it may seem absurd to connect the childish play of these small blocks with such significant and valuable qualities as tact and courtesy, but if the psychological connection between things of the sense-perceived world and things of the thought-world, is kept in mind, the connection between logical and harmonious play-things and logical and harmonious thought power is self evident. We have again to refer to the unerring testimony of common language to give added proof, if added proof is needed. Who does not understand what is meant by: "This is correct form". "Do not do so and so, it is bad form". And there are many similar expressions, all indicating the close relation which the race has felt between good forms in material things and good forms in social matters. The analogy applies to even higher things of the spirit.

**PERCEPTION  
OF SIZE.**

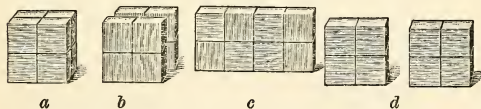
The play with the Third Gift gives to the child another very distinct step forward in his conscious mastery of the objects of the outside world. A perception of *size* is brought to him by the sameness of the forms of the whole gift and the form of each of the eight small cubes, into which it is divided by the intersection of its three axial planes at its center. In his rearrangement of the blocks in any way he must constantly perceive this difference in size. It is



made all the more conspicuous by the identity of form.

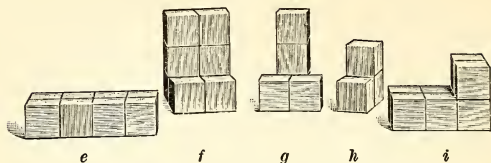
The thoughtful mother or kindergartner does not stop with the comparison between the large and small cubes. The child is led to point out large and small people, large and small chairs or other objects, to sort out the large and small pebbles, to bring from home large and small apples or potatoes or other available illustrations of the same general property of matter, until he thus instinctively begins to classify the objects of the material world and the sooner masters its myriads of forms. Many more exercises in form and size are given him by the later gifts, as will be seen hereafter. But the distinct difference in the large cube and small cubes of the third gift, is his first definite introduction into the discrimination of sizes.

The story of the three bears, so dear to the child-heart, is an excellent illustration of the application of the idea of size to other objects and is often given



No. 13. Showing the first four moves in the sequence illustrating the story of the "Three Bears," ie. *a*—The house. *b*—The street. *c*—The high wall. *d*—Gate way.

at this stage of the child's growth. We give in Figures 13 and 14 suggestions as to how the house, the wall, the gate-way, the table, the three chairs



No. 14. Showing the next four moves in the sequence of the "Three Bears." *e*—The table. *f*—Father Bear's chair. *g*—Mother Bear's chair. *h*—Baby Bear's chair. *i*—The baby bear's bed.

and a bed may be represented. But children manifest most pleasure when they are permitted to make the father bear's chair, bed, etc., out of the boxes of the Third Gift, the mother bear's belongings out of the cubes of the Second Gift and the baby bear's possessions out of the one-inch cubes of the Third Gift. If the tones of the voice are changed so as to represent the deep bass of a man's voice, the well modulated alto voice of a woman and the high treble of a child's voice, the delight in the story is increased, and the little listeners also get a new impression of the differing sizes of sound, which is a step toward the transference of the meaning of large and small from a mere physical comparison of bulk to the spiritual content that lies hidden in the two words. This is why Froebel suggests that about the time when the child is beginning to be interested in the subject of sizes of objects, the story of David and Goliath be told to him, to teach him that physical largeness does not always mean spiritual largeness, nor does material littleness prevent spiritual greatness. For a fuller development of this

thought we refer the reader to the song of the joiner in the Mother Play Songs.

**PERCEPTION OF NUMBER.** This subject of size introduces us at once to that most important concept, *number*. It is hardly necessary to comment to any extent upon the value which the quick power of measurement gives to the child. And number is a necessity in measuring. In fact number and the relation of one number to another underlie all intelligent mastery of the material world, as well as all the business transactions of life. The child seems to instinctively begin to count long before he enters Kindergarten. Not always by the naming of objects according to their numerical nomenclature, but often times by arranging them in rows one after another, repetition of *ones* being the first step in counting.

For a further discussion of the important and interesting subject of psychology of number we refer the reader to Dr. Snider's "Psychology of the Gifts", where in the chapter on the Third Gift, he unfolds the subject with much clearness and careful detail.

We herewith give a series of exercises in Arithmetical combination for the older children to be used at the discretion of the kindergartner or primary grade teacher.

It must be remembered that the younger children get many arithmetical impressions incidentally in their building with the blocks, and that *the inch*, the unit of measurement of all Teutonic and Anglo-Saxon people, is constantly before them.

But there comes a time when definite number work is given, in order that the child may learn to see that the universal relation of the number in the particular set of objects before him is in reality a general concept.

We can not leave this important subject without calling attention once more to the psychological fact that we translate our sense perceived experiences into terms that have spiritual meaning; that Judgment and Reason are developed by mathematics is shown by such expressions as "Count the cost before you act". "I will weigh both sides of the argument", "With what measure ye mete it shall be measured again to you". The reader will recall many more such testimonies of the fact that the race has felt this close connection.

#### ARITHMETICAL DIVISIONS.

##### Division of Cubes by Integers.

(A.)

1. Show cube as a whole.
2. Place one cube on the table. How many ones did you place? One one.
3. Place one cube beside and touching this cube. How many ones did you place? Two ones.
4. Place one cube beside and touching this cube. How many ones did you place? Three ones.
5. Place one cube beside and touching this cube. How many ones did you place? Four ones.

6. Place one cube beside and touching this cube.  
How many ones did you place? Five ones.
7. Place one cube on beside and touching this cube.  
How many ones did you place? Six ones.
8. Place one cube on beside and touching this cube.  
How many ones did you place? Seven ones.
9. Place one cube on beside and touching this cube.  
How many ones did you place? Eight ones.

(B.)

1. Take one from the eight ones. How many ones remain? Seven ones.
2. Take one from the seven ones. How many ones remain? Six ones.
3. Take one from the six ones. How many ones remain? Five ones.
4. Take one from the five ones. How many ones remain? Four ones.
5. Take one from the four ones. How many ones remain? Three ones.
6. Take one from the three ones. How many ones remain? Two ones.
7. Take one from the two ones. How many ones remain? One one.
8. Take one from the one one. How many ones remain? No ones.

These arithmetical exercises are for advanced children.

## Division of Cube By Twos.

## EXERCISE TWO.

## (A.)

1. Show cube as a whole.
2. Place two cubes on the table. How many twos did you place? One two.
3. Place two cubes beside and touching these. How many twos have you? Two twos.
4. Place two cubes beside and touching these. How many twos have you? Four twos.
5. Place two cubes beside and touching these. How many twos have you? Five twos.
6. Place two cubes beside and touching these. How many twos have you? Six twos.
7. Place two cubes beside and touching these. How many twos have you? Eight twos.

## (B.)

1. Take two from the eight twos. How many twos remain? Six twos.
2. Take two from the six twos. How many twos remain? Four twos.
3. Take two from the four twos. How many twos remain? Two twos.
4. Take two from the two twos. How many twos remain? One two.
5. Take two from the one two. How many twos remain? No twos.

## Division of Cube by Fours.

## EXERCISE THREE.

(A.)

1. Show cube as a whole.
2. Place four cubes on the table. How many fours did you place? One four.
3. Place four cubes beside and touching these. How many fours did you place? Two fours.

(B.)

1. Take four from the two fours. How many fours remain? One four.
2. Take four from the one four. How many fours remain? No fours.

## EXERCISE FOUR.

## Division of Cube by Fractions.

1 (A)

Divide cube from right to left into two halves.  
Divide cube from back to front into four fourths.  
Divide cube from top to bottom into eight eighths.  
Unite the eight eighths into four fourths.  
Unite the four fourths into two halves.  
Unite the two halves into one whole.

1 (B)

Divide cube from front to back into two halves.  
Divide cube from top to bottom into four fourths.

Divide cube from left to right into eight eighths. Unite the cube into four fourths, two halves and one whole as in 1 (*A*).

### 1 (*C*)

Divide the cube from top to bottom into two halves. Divide the cube from left to right into four fourths. Divide the cube from front to back into eight eighths. Unite the cube into four fourths, two halves and one whole as in 1 (*A*).

These fractional divisions are intended of course for the older children.

### Geometric Divisions.

The Geometric forms with which the child becomes familiar in his use of this gift are limited; we give them below. The space enclosed forms are more, but as there are other materials in the Kindergarten better fitted to illustrate space enclosed forms they are not dwelt upon with any degree of emphasis here.

#### Division of the Cube into Forms of Knowledge.

### 1 (*A*)

Divide the cube from front to back into two short square prisms. Unite these square prisms into one cube.

### 1 (*B*)

Again, divide the cube from left to right into two short square prisms. Again unite into a cube as in 1 (*A*).



## 1 (C)

Again, divide the cube from top to bottom into two short square prisms. Unite into a cube as in 1 (A).

## 2 (A)

Divide the cube from front to back and left to right into four long square prisms.

Unite these into two short square prisms and these into the cube.

## 2 (B)

Divide the cube from left to right and from top to bottom into four long square prisms.

Unite these again as in 2 (A).

## 2 (C)

Divide the cube from top to bottom and from front to back into four long square prisms.

Unite as in 2 (A).

Cube Divided According to Equal Dimensions.

Two short square prisms.

One oblong prism.

One long square prism.

Two long square prisms.

Four long square prisms.

Eight cubes.

Cube Divided According to Unequal Dimensions.

Three long square prisms  $\left\{ \begin{array}{l} 2 \times 1 \\ 3 \times 1 \\ 3 \times 1 \end{array} \right.$

Three long square prisms  $\left\{ \begin{array}{l} 2 \times 1 \\ 2 \times 1 \\ 4 \times 1 \end{array} \right.$

Space Inclosed Forms.

One 2-in. square.

Two 1-in. squares.

One 1x3 oblong.

#### FORMS OF BEAUTY.

There is perhaps no feature of the Kindergarten work more criticised by the outside casual observer than the so-called "forms of beauty" of the Third Gift. This is due largely to the somewhat misleading name. Froebel seems to hesitate as to what he should call this important series of exercises, designating them at various times as "forms of beauty", "forms of symmetry", "forms of harmony" and "picture forms". They in no way represent any of the useful objects in the world about the child, nor can they be said to emphasize number or form. Still they universally interest and appeal to children as any Kindergarten can testify who has comprehended their real significance and has used them accordingly. This indicates that they appeal to something inherent in the child. Nowhere in the whole series of the Kindergarten Gifts does Froebel's theory of presentment (or *ahnen*) come out more strongly than in his writings concerning these forms.

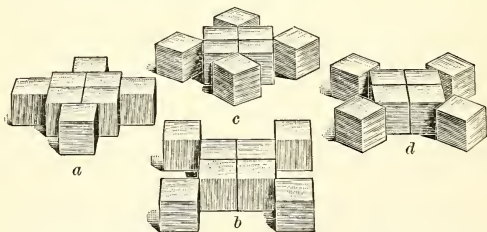
He insists that their symmetry is pleasing to the child because they stir within him, by analogy, the dim fore-shadowing of spiritual truths. Does the skeptic ask why this merely mathematically adjusted arrangement of eight one-inch cubes should stir the child with delight? As well might he ask why certain tones in music stir the emotions and why definitely calculated combinations of notes make sad the heart of man, or why a gray sky depresses and a blue sky rejoices us.

The fact cannot be too much emphasized that form has its language as sound and color have theirs, though it has not been as generally understood. There are hymns and sermons and poems uttered by dumb forms; there are gentle benedictions silently wafted to us by courage, and strength and power to endure come to us by means of certain strong lines, stirring music or strong, deep color. And the young child's heart responds to the simple beginnings of proportion balance, symmetry and completeness of form, as put forth by these small blocks. It is but the beginning of the mighty music of form that will flood his whole future life with joy, if rightly developed.

The orderly movement of these eight blocks either *in and out* by means of the outer and the inner alternately being moved out from the center or in toward the center, or the movement of the four outer blocks *around* the four inner ones, first to the right, then to the left, are designated by Froebel as "the

'dance of the blocks"; the name suggests "the dance of the season", "the dance of nature", in fact the mysterious endless swinging of the planets around their central sun is sometimes called "the dance of the worlds".

Since the time when the morning stars sang together all rhythmic motion, whether large or small, has been a joy to the poetic mind. All nature is in a process of movement. Even the dull, lifeless stone upon the road side holds within itself the possibility of speeding swiftly to the center of the earth were all intervening matter removed; the cold, silent whiteness of the winter's landscape is but the outer covering of throbbing, stirring life that sooner or later shall burst forth into the surging, swelling growth of the springtime; the bud so strongly sheltered in its outside wrappings is growing, moving on towards its blossoming period!



No. 15. Showing a sequence of four moves in forms of beauty, in which the blocks touch. *a*—Face to face. *b*—Edge to edge. *c*—Edge to face. *d*—Face to edge.

The child's mind may be prepared, to a certain extent, for this truly scientific, as well as beautifully

poetic view of nature, by being trained to see total *processes* where as yet only *one stage of the process* can be seen, to know the future possibilities as well as the present aspect of any object.\*

Sometimes it is well to have one child make the first form of a series of rhythmic movements, the next child make the second step, the third make the third step and so on. In this way the children see all the movements in the process. At another time, it may be well to have each child lay all the steps in the process, thus making it more of a thought process than in the former case.

Many little rhythmic plays may arise from these exercises with the blocks; for example, the children delight in crossing the hands over the chest, palms inward, then extending them out at arms' length with the palms turned outward, then repeating the

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\*This training may be begun by play and song as the four outer blocks move around the four inner ones, in some such fashion as follows: "What do we now notice here?" See Fig. 15. Four cubes stand close together in the center, four others stand around them less close, and we might actually say movable; but what now is shown to us by this relation of the four outer movable cubes to the four inner quiescent firmly standing cubes? It shows that *surfaces* or *sides* join *surfaces* or *sides*. But the cube shows also *edges* or *lines*, just as surfaces join surfaces, or surfaces touched surfaces, so can or must edges join edges or edges touch edges. See Fig. 15*d*. But if now surfaces can join surfaces and edges join edges, so also in the progressive course and completion of development or movement, opposites can and must unite or join with one another. *Edges* must join with *surfaces* and *surfaces* with *edges*. Now how is all of this to be made perceptible to the child in the simplest way? As already said, by moving and removing. We begin with the arrangement of the blocks as in Fig. 15*a*; we move one after another, the four outer cubes which now stand with surface to surface, around to the left or right, so that now edges touch edges (see Fig. 15*b*), then further edges touch surfaces (see Fig. 15*c*), and finally surfaces touch edges (see Fig. 15*d*), and we have then represented before the child's eye what we wished, we have made manifest and clear the inner unity of the shape in the manifoldness of the movements in and through the change of shapes, and the child will soon give evidence through lively gesture and looks that he finds this dance of shapes beautiful. How now invite the child to the exhibition and consideration of their change of shape? By the thing itself.

"Come, child, we will dance the cubes once more," but in order that they may not be tired always let each wait a little. Now face around to the right, around to the left (see Fig. 15). "Come, child, we must also sing to the dancing."

movement, then moving them around and around, first one way and then the reverse, singing at the same time, some such ditty as:

In and out, in and out,  
And around about,  
Tra la la la la.

The same exercise can be played with the arms, the whirling being round and round like a wind mill. All exercises in which the child performs the same movements as his play gifts, have already been shown to be helpful in aiding him to see the general change, common to many things in a particular object, and they also serve to give more seeming life to the play gift.

Rhythm, which plays so large a part in man's mastery over his own body as well as his mastery over nature, should come to the child as self evident indications of regularity, order and system, in the whole universe.

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Face to face put. That is right!  
Edges now are meeting quite.  
Edge to face now we will lay,  
Face to edge will end the play.

The same alterations have been made with the four outer cubes, or changes similar to them, can also be undertaken with the inner. The four cubes hitherto quiescent in the center, can now unfold their activity also. Singing may then accompany the action, thus:

Only the outer blocks seem now to go,  
For the four inner blocks no movement show!  
But all this seeming is only show,  
Inner makes outer this way to go!  
Its will is quiet but we will see,  
It makes the inner and outside be.

We deliberately give prominence to this example and to this change of form, in order to show that with this treatment of the child's plays no undue pressure has been put on the course of development of the child or on the expression of its inner nature in shaping and making of forms, but that, as in nature, the whole can be comprehended from each point and continue to be developed vitally and connectedly. "Pedagogics of the Kindergarten," pages 133-134, Appleton edition,

In fact, the source of rhythm is in the movement of mind, and it is only when the Kindergartner rightly understands this psychological movement, that she can make rhythm a part of the child's being, until he feels in very truth that "Rhythm is the heart-beat of the Creator, felt by his Creatures".

#### POINTS OF ANALYSIS OF THE THIRD GIFT.

1. Description of gift.
2. Relation to previous gift.
3. Salient characteristic.
4. Forms illustrated.
5. Relation to the child.

## CHAPTER IV.

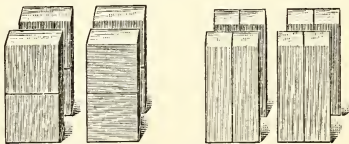
## THE FOURTH GIFT.

(The Fourth Gift is a two-inch wooden cube divided vertically, once from back to front, and three times from right to left, producing eight brick forms, each of these being two inches long, one inch wide and one-half an inch thick.)

**A FUNDAMENTAL  
PRINCIPLE OF  
ALL THE KINDER-  
GARTEN GIFTS.**

As has already been stated, Froebel requires as a fundamental principle in all of the play-gifts that each form given must condition the one which follows.\*

“Each new gift fulfills and interprets its predecessor, by making explicit what it implies”. The Third Gift emphasizes the cube in form and the one-inch in measurement. The square prism and also the parallelopiped or oblong prism, appear transitorily in the forms made from it, and varying dimensions of length, breadth and thickness, are seen in each new object made, until the child is more or less familiar



No. 16. Showing that the first two divisions of the 3rd and 4th gifts are alike, but that the third division is different.

\*Pedagogics of the Kindergarten, page 174.



with extension of surface and with increased length of lines, and with dimension of size. But as these impressions are constantly changing with each form made, it rationally follows, therefore, that the next tool placed in his hand shall emphasize these new properties of matter; namely, increase of surface and variation of dimension, and all the laws of proportion, equilibrium and balance, which follow this variation in length, breadth and thickness. If the cubes of the Third Gift are placed in a double row touching each other so that an oblong form is made which is four inches long, two inches wide and one inch thick, we have a form exactly corresponding in shape and relation of length, breadth and thickness to the parallelopiped or oblong "brick" of the Fourth Gift, thus actually foretelling the new form which is soon to be evolved into a permanent plaything for the child. After enough free play with the Fourth Gift to familiarize the child somewhat with the form of the brick or oblong prism, this new fixed form is easily produced by having the child make a clay cube two inches in dimension, then allowing him to divide it in half from back to front vertically. It may be well to have the Third Gift on the table and have it divided into halves first, then divide each of the halves into fourths by a vertical cut from right to left, thus making four square prisms, two inches high, one inch wide and one inch long. Let the children do the same with the two halves of their clay cubes. Then instead of the next

cut being parallel with the top and bottom face of the square prism as in the Third Gift, lead them to suggest that they cut it into halves from back to front parallel with the oblong side faces of the square prism, and Presto! the new form appears! a parallelopiped two inches long, one inch wide and one-half inch thick, an innocent looking object but by means of it, the young discoverer has been introduced to an instrument which will guide him in many a search into the great world of form, and will assist him in the efforts at rhythmic proportion which his beauty-loving soul strives to create; for with the introduction of the variation of dimension comes the first dawn of proportion of size and balance of parts which is to lead in time to an insight in the rhythmic dance of the Greek columns and the soaring anthems of the Gothic cathedrals. For the subtle grace and beauty of the one, and the majestic dignity of the other depend to a large extent upon their proportion of length, breadth and thickness; the first glimmer of which comes to the child in his play with the new oblong form which has been presented to him in its abiding shape as found in the Fourth Gift.

**HOW TO USE  
THIS GIFT  
AT FIRST.** It is well when the Fourth Gift is first used to give it alone and allow the child to play freely with it. After the exercise above suggested he will at once identify it with the new form made from the clay cube. However, it will be well on the

second or third play with the new blocks, to have a Third Gift on the table also, and have the two sets of blocks divided into halves, fourths and eighths, so as to make distinct and clear to his mind the new properties which the gift possesses. If some dictated or suggested forms are built, or if some creative use of the blocks encouraged after each new analysis, such as the one given, there is no danger that a tendency towards destruction established on the one hand, or a dry mathematical analysis on the other hand, any more than there is danger of sentimentality or cynicism following the study of ethics if each new insight is put into a deed.

The child not only comprehends the new form the more readily from having derived it in this simple and direct manner from the already familiar forms of the Third Gift, but he also gets a hint or suggestion of the great law of evolution which is the key to both science and sociology, and will the more readily recognize the workings of that all pervading law from having had play-gifts which are logically connected one with another.

**ANOTHER FUNDAMENTAL PRINCIPLE OF THE KINDERGARTEN GIFTS.**

The Fourth Gift is, however, to be considered as a whole complete in itself; not dependent upon any other gift for the many and varied shapes it assumes. Like all the preceding gifts it can easily be transformed; and "another fundamental idea" is suggested, namely that all knowledge and comprehension of life are connected

with the making of the internal external and the external internal with a perception of the harmony of both. But this book is not the psychological study of the Kindergarten gifts. It is a practical treatise on the value of aiding the child to perceive the fundamental properties of the objects in the world about him. This perception assists him to order and to classify them the more readily. He will thus the sooner come into a conscious mastery of the material world, which it is his destiny to obtain, because he is a being endowed with intelligence.

(We will not enter into the details of this most interesting subject, as it is so fully elaborated in Dr. Snider's *Psychology of the Play Gifts*.)

Let us return again to the characteristics of the Fourth Gift, which emphasize for the child certain necessary perceptions found everywhere in the outside world.

**AN IMPORTANT  
CHARACTERISTIC  
OF THIS GIFT.**

We have seen that the Third Gift by various exercises, plays and games gave to the child clear cut perceptions of position and number. We here find that the rapid transition from solid to surface and from surface back to solid, not only charms the child but opens to him that larger world which variation of dimensions gives.

Take for example such an exercise as the following. Place the cube so that its bricks will lay on their broad faces extending from front to back. Lift off the four top bricks, placing them to the

right of the four bricks remaining, again divide these halves into halves by placing the four bricks at the top in front of the four bricks at the bottom, and joining these eight bricks in a square prism four inches long and four inches wide, and one-fourth of an inch thick. This suggests the embodied surface which is to be presented by means of a later gift. This extended form may be quickly rebuilt into a cube by first placing the four front bricks on top of the four back bricks and again by placing the four bricks at the right on top of the four bricks at the left.

Some such rapid spreading out of the blocks and equally rapid gathering of them up again, gives the child the play of varying dimensions which is one of the chief purposes of this gift.

It may be well to say in passing that in playing with a young child each form should be named in order that the word may be connected with the form and both be made clearer thereby.

**CHANGE OF SHAPE  
BUT SAMENESS  
OF CONTENT.** And he also soon learns that there can be a difference of dimension with sameness of content. As for example: First place the cube with its long narrow faces from back to front. Let the children count the number of bricks, tell how high, how long, how wide. This may be called a square trunk, or some similar object. Next take the four top bricks and place them at the back of the four lower bricks touching them. This

may be a steamer trunk. Let the children again count the number of bricks used, tell how long, how high, how wide this new trunk is. Now take the four right hand bricks and place them at the back of the four left hand bricks and a sofa box or like object is represented. Again the number of blocks may be counted and the differing dimensions be given. If now the four top bricks be placed at the back of the four front bricks touching them by their long narrow faces, an oblong of four by two by eight inches is formed. This has been called a mattress.\*

**CHANGE OF CONTENT BUT SAME-  
NESS OF SHAPE.**

Difference of size he has already learned, but the more subtle relationship of quantity to shape or independence of quantity from shape is now begun. These exercises with the blocks should be accompanied by play, and of course be followed by similar expressions with objects in the world about him; as for example, he may be encouraged to find things in the room which are the same shape but different in size or the same size and different in shape, or again, to bring from home things which are wider than they are long, or longer and wider than they are thick, or thicker than they are

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\*On one occasion a child began to lay the foundations of a church with her blocks. Two blocks placed in front of a long row suggested to her mind the legs of an animal and she exclaimed, "Oh, it isn't a church any longer, it is a cow!" All of us have witnessed such sudden flights of the childish fancy, but that which is perfectly legitimate in the child (because it corresponds with his inner image), may be most confusing and even absurd in the Kindergarten. Therefore, a word of caution is not out of place concerning the transformation of a sofa-trunk into a train of cars or similar disconnected object.

long. At no time does Froebel ever intend that his gifts shall be used independently of the objects that are about the child and that naturally attract his attention, but rather that they shall be the keys as it were, that unlock for him the great world of animate and inanimate nature.

**LAW OF GRAVITATION.** Exercises in equilibrium and balance always amuse and interest the child. As for example: Let the children try to balance one block on top of another turned on its long narrow face, then on its short narrow face, then try balancing a block on top of two blocks which have been stood one on top of the other. Another amusing exercise in balance is to stand the eight blocks in a row from right to left with long narrow faces to the front. Place them one-half inch apart, then touch one of the end blocks and as it falls it communicates its motion to the next and so on until the whole row lies piled on the table—thus many spiritual analogies may be suggested—illustrations of communication of motion may be given. Of course two blocks may be placed before two, or three before two, etc. Again, with three bricks make a high post. On top of this post balance another brick on its broad face; upon each end and in the middle of this stand a brick with its long narrow face to the front. On top of these three bricks lay another with its broad face up and extending from left to right, and we have a crude representation of a pigeon house. As the child experi-

ments in the poise and balance of various other objects, there begins within him the slow dawning of that great law of gravitation and all that it will suggest, as the mind goes forward in its philosophical study of the spiritual life of man.

**LIFE FORMS.** It will be readily seen that a large variety of life forms may be made to illustrate with ease and accuracy the child's real or imaginary experiences, by developing one form from another. As for example: Place the cube so that its bricks will lay on their broad faces, extending from front to back. Draw the right half of the cube one and a half inches to the right, push the three upper bricks of each half of the cube one quarter of an inch toward each other. Again push the two upper bricks of each half of the cube toward each other, and again push the two bricks on top of each half of the cube toward each other, until they touch; and you have a form which may represent a small step ladder. Another form may closely follow this, i. e., push the three top bricks of each half of the cube together and the two bottom bricks one quarter of an inch in toward each other, then lay the two bricks which are now on top on their long, narrow faces, on the protruding bricks which are at the left and right side. The children call this a desk. If now you will stand the two middle top bricks on their short ends, these bricks remaining on the same bricks where they formerly lay, you will have a form representing a high back arm chair.



This may be easily transformed into a pleasing suggestion of a book-case by laying the last moved bricks down on their broad faces extending from left to right, at the back of the same bricks on which they formerly stood, then take the two bricks at the right and the left sides of these, placing them with their broad faces touching in the same position and on top of the two last bricks moved, and push together the two bricks at the bottom of the form. If the two top bricks be placed at the right of and touching the present form and the two which now remain on top be placed in the same relative position at the left, we have what represents a library table, and this is readily changed into the cube. If all the children at the table make each of the forms in some such sequence and then if each child selects one of them to make in group work, a pretty play can be carried forward in which paper dolls or bits of sticks can take the part of the people using the room and its furniture. If some such sequence is given rightly to the children, either by imitation, suggestion or dictation, it will lead them to make many life forms, from which other sequence can easily be arranged.\*

#### **GEOMETRIC FORMS.**

With the Fourth Gift can be made thirty-two differently proportioned square and oblong prisms, and other geometric space enclosed forms can be made by it

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\*When one Kindergartner writes to another, "Please trace off for me some new sequences of life forms, for I have exhausted those I have," the request shows that she does not at all understand fluid, flexible, even changing growth that Froebel intended to be the result of this evolution of one form from another.

owing to the various lengths of the different faces of the blocks.

These may be given to the older children as puzzles or problems. See following table:

## SOLIDS.

Cube	-	-	-	-	-	$2 \times 2 \times 2$
Short square prisms	-	-	-	-	-	$2 \times 2 \times 1$
Short square prisms	-	-	-	-	-	$2 \times 2 \times \frac{1}{2}$
Short square prisms	-	-	-	-	-	$4 \times 4 \times 1\frac{1}{2}$
Long square prisms	-	-	-	-	-	$2 \times 1 \times 1$
Long square prisms	-	-	-	-	-	$4 \times 1 \times 1$
Long square prisms	-	-	-	-	-	$8 \times 1 \times 1$
Oblong prisms	-	-	-	-	-	$2 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$4 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$6 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$8 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$10 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$12 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$14 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$16 \times 1 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$4 \times 1\frac{1}{2} \times 1$
Oblong prisms	-	-	-	-	-	$4 \times 2 \times 1$
Oblong prisms	-	-	-	-	-	$3 \times 2 \times 1$
Oblong prisms	-	-	-	-	-	$3 \times 2 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$4 \times 2 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$5 \times 2 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$6 \times 2 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$8 \times 2 \times \frac{1}{2}$
Oblong prisms	-	-	-	-	-	$2\frac{1}{2} \times 2 \times 1$

Oblong prisms	-	-	-	$3 \times 2 \times 1$
Oblong prisms	-	-	-	$3\frac{1}{2} \times 2 \times 1$
Oblong prisms	-	-	-	$4 \times 2 \times 1$

## Space Enclosed Forms.

Square	-	-	-	-	$\frac{1}{2}$ in.
Square	-	-	-	-	1 in.
Square	-	-	-	-	$1\frac{1}{2}$ in.
Square	-	-	-	-	2 in.
Square	-	-	-	-	$2\frac{1}{2}$ in.
Square	-	-	-	-	3 in.
Square	-	-	-	-	$3\frac{1}{2}$ in.
Square	-	-	-	-	4 in.
Oblong	-	-	-	-	$2 \times 1$ in.
Oblong	-	-	-	-	$4 \times 1$ in.
Oblong	-	-	-	-	$6 \times 1$ in.
Oblong	-	-	-	-	$1 \times \frac{1}{2}$ in.
Oblong	-	-	-	-	$2 \times \frac{1}{2}$ in.
Oblong	-	-	-	-	$3 \times \frac{1}{2}$ in.
Oblong	-	-	-	-	$3 \times 2$ in.
Oblong	-	-	-	-	$4 \times 2$ in.
Oblong	-	-	-	-	$5 \times 2$ in.
Oblong	-	-	-	-	$6 \times 2$ in.

## FORMS FORESHADOWED THE FIFTH GIFT GEOMETRIC.

Rhombus	-	-	-	-	$\frac{1}{2} \times \frac{1}{2}$ in.
Rhombus	-	-	-	-	$1 \times 1$ in.
Rhombus	-	-	-	-	$2 \times 2$ in.
Rhomboid	-	-	-	-	$4 \times 4$ in.

Rhomboid	-	-	-	-	1 x $\frac{1}{2}$ in.
Rhomboid	-	-	-	-	2 x 4 in.
Rhomboid	-	-	-	-	2 x 6 in.
Rhomboid	-	-	-	-	4 x 6 in.

The kindergarten child's attention need not be called to these space-enclosed forms, as they are intended largely for the primary grades or older children.

The irregular forms are not given here but they can be easily produced, some of which are the pentagon, hexagon, heptagon, octagon, trapezoid and trapezium—too many in number to be here described.

**ARITHMETICAL FORMS.** All the operations in addition, subtraction, multiplication and division included within eight blocks, as well as many problems in fractions can be played with as it were, before the more serious task of learning the multiplication table is even dreamed of. The following are some of the arithmetical problems that can be easily worked out by children of five or six years of age with no strain whatever upon their mental faculties if they are rightly given with the due amount of play and freedom on the part of the child, as the demonstration of the fact by the presence of the object is ever before him.\*

### Exercises in Division and Fractions.

1. Place the cube so that the bricks will lie on their broad faces from front to back.

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\*For exercises in addition and subtraction, etc., see Arithmetical Exercises in previous chapter.

2. Divide the cube into halves from left to right.
3. Divide these halves into halves, thus showing  $\frac{4}{4}$ .
4. Divide these fourths into halves, thus showing  $\frac{8}{8}$ .

Unite two of these eights, thus showing  $\frac{6}{8}$  and  $\frac{1}{4}$ .

Unite two other eights, thus showing  $\frac{2}{4}$  and  $\frac{4}{8}$ .

Unite two other eights, thus showing  $\frac{3}{4}$  and  $\frac{4}{8}$ .

Unite the remaining eights, again making  $\frac{4}{4}$  or one whole.

Unite two of these fourths, thus showing  $\frac{1}{2}$  and  $\frac{2}{4}$ .

Unite the remaining  $\frac{2}{4}$ , thus showing  $\frac{2}{2}$ .

Unite these halves, thus making one whole.

The preceding exercises may be varied in several ways.

As for example:

What part of the cube is one brick?

What part of the cube are two bricks?

What part of the cube are three bricks?

What part of the cube are four bricks?

What part of the cube are five bricks?

What part of the cube are six bricks?

What part of the cube are seven bricks?

What part of the cube are eight bricks?

In  $\frac{1}{8}$  of the cube how many bricks?

$\frac{2}{8}$  of the cube are how many bricks, etc.

Or this:

In  $1/8$  of the cube are how many bricks?

$2/8$  of the cube are how many bricks? etc.

**FORMS OF BEAUTY.** The so-called "forms of beauty" or "harmonious forms" are developed from the forms of knowledge. (See Fig. 17a.)

First, this simple geometric arrangement of the "bricks" may be changed from lying on their broad faces to standing on their long narrow



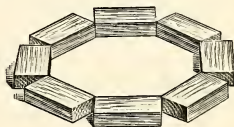
No. 17. Showing the geometric foundation in a sequence of "forms of beauty;" also the first move in the same sequence.

faces, then on their short narrow faces, and back again to the first position, thus giving a beginning of rhythmic change. The children are very fond of seeing the same thing appear under different conditions. It is the law of repetition, the beginning of rhythm that fascinates them. After some such plays as this the blocks can be arranged on their broad faces (see Fig. 17b), two and two around a hollow square ("or invisible center"). If each of these two-inch squares is now turned to a slanting position still touching by their inner corners and inclosing a hollow square which now has a corner to the front and back, right and left instead of an edge as before, we shall have a geometric form from which the forms of beauty can most easily be

derived. The "germ", Froebel called it, out of which over one hundred symmetrical forms may be developed. The first of these forms is made by separating the outer corner of each of the two blocks, letting the inner corners still touch each other. This gives us a radiating figure which surrounds an octagonal space or center. (See Fig. 18a.) If now each block



18a



18b

No. 18. Showing the next two moves of the blocks in this same sequence of "forms of beauty" as radiating and encircling.

is turned so that its long narrow face is towards the center instead of the short narrow face, we have the starting point of the opposite series of *encircling* symmetrical forms (see Fig. 18b); in addition to



a



b



c

No. 19. Showing the last three movements of the blocks in this same sequence of "forms of beauty." 1st—As the encircling within the radiating. 2nd—As the radiating within the encircling. 3rd—as the radiating and encircling balanced.

these the child soon discovers, that he can make intermediate forms (see Fig. 19), namely, (a) radiating forms inclosed within encircling forms and (b) and (c) encircling forms closed within radiating forms.

**TWO GREAT  
FORCES OF  
THE WORLD.**

These are frequently called by the children "star forms" and "wreath forms". Any thoughtful mother or well trained kindergartner knows that the child is now playing with the visible illustrations of two of the mightiest factors in the whole physical world, viz.: that marvelous force which sends the life within pulsing out, and that equally mysterious force that limits or circumscribes this radiating power. In fact all forms from the tiniest crystal to the most complex human organism are illustrations of these two seemingly opposing yet constantly united forces. Throughout the entire range of Kindergarten materials from the wet string tied in a circle and placed on a plate for the baby fingers to push out into many varying shapes, on through almost all the so-called gifts and occupations, the play of these two forces is indicated. We find it in the first conception of the ball as an invisible center sending forth radii to a certain equi-distant periphery which is made an object of sense-perception by the radiating worsted ball for the older child. Again it is hinted at by the divided sphere, cylinder and cube in the extension of the second gift. But the radiating and encircling forms of the Fourth Gift become more pronounced, and they may be emphasized in the form of a charming play, if accompanied by some rhythmic song or even rhyming jingle, improvised for the moment.



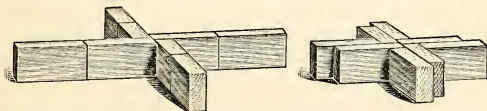
**THE MOST IMPORTANT MECHANICAL FORM IN THE WORLD'S ECONOMY.**

Among these intermediate forms may be produced the "wheel-form" which can be made the point of the departure for excursions into the world of machinery. Do we realize that the wheel is the chief instrument by means of which man has been able to control and to command wind and waves to do his bidding, lift the burdens from the horse's back, harness the stream and chain the electricity until the never ending roar of Niagara becomes the song of industry by the turn of the wheel?\*

We thus begin, perhaps, to comprehend the opportunities which lie in this simple Fourth Gift to guide the child's thoughts into the wonderland of Man's achievements as well as to open for him the door of that greater wonderland of nature.

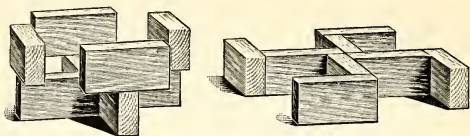


No. 20. Showing 1st and 2nd moves of the blocks as wheel forms. 1st—"The pin wheel." 2nd—"The windmill wheel."

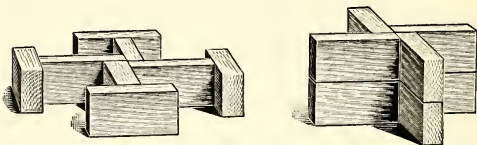


No. 21. Showing the third and fourth moves of the blocks in their same sequence. 3rd—Windmill as seen when turning a corner. 4th—Buzz wheel.

\*We most heartily recommend the reader to familiarize herself with the most unique and suggestive chapter on "The Ferris Wheel," in Dr. Snider's *World's Fair Studies*.



No. 22. Showing fifth and sixth moves of the blocks in this same sequence. 5th—"Merry go round." 6th—"Water Wheel."



No. 23. Showing the seventh and eighth movements of the blocks in this same sequence. 7th—The band wheel. 8th—The turn stile.

#### OTHER

#### KINDERGARTEN MATERIALS USED.

In the sticks and rings we have separate and distinct embodiment of these two forces in nature; whereas the "school of circular sewing" and that of the circular paperfolding and cutting, echo, as it were the song; and the much misunderstood schools of weaving and linear drawing tell in their way the same subtle story of opposites being united; of unity, separation and union again. The embodied point, usually a small flat seed and holding within its encircling cover a power to send forth new life, may be so used as to make both the radiating form within the circle and the encircling form within the radiating.

**SAME FORMS  
SEEN IN  
NATURE.**

The intermediate forms are often called by the children "flower forms". This name leads to a direct and distinct connection which may be made between these new forms and the outside world, as the child can easily be led to see that the stamens and petals of a flower radiate from a center out: whereas the calyx and sepals are encircling. The radiating veins of most leaves with their limiting and encircling margin, repeat the story. In fact the two great divisions of the whole plant world, the exogens and endogens suggest this twofold play of life forces. The child who in his play with his blocks or sticks and rings has learned to make radiating and encircling forms will the sooner classify the radiates and molusks when he enters into the study of the animal world.\* Any one who has seen the magnified seed pods of hundreds of American plants as shown by the rare collection of glass flowers in the Natural History Museum at Harvard College, realize the wonderful geometric arrangement of their seeds.

**SAME FORMS  
SEEN IN THE  
WORLD OF  
HUMAN EFFORT.**

The well informed art critic looks for the "central point and setting" in any work of art. The experienced politician seeks the help of the radicals to push forward any project he wishes to have promoted, or the help of the conservatives if he wishes to prevent a project from being carried forward. The true

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\*Pedagogics of the Kindergarten, page 190.

statesman must remember the sacredness of state's rights, yet never forget the limiting of the same by the all encircling federal authority. Every thorough student of sociology must acknowledge the divine right of the individual to put forth his individual tastes and activities in any direction he may choose, but he must also realize that this putting forth is to a certain extent checked by the divine right of family or state. In time of family trouble the individual must sacrifice his own pleasure or profit. In time of war the rights or the progress of the individual or even the community are not considered. Even those twin mysteries of life and death, when viewed from a certain standpoint, seem to be a sudden raying forth of life and a silent rounding off of that radiating of life. A thousand and one such suggestions come to the thoughtful mind as it looks upon the child content in his play with radiating and encircling forms, happy in the consciousness that he can change the one into the other or each into new forms that still obey the same law of formation. Froebel asserts that the educative influence of this Fourth Gift lies largely in the fact that it gives this visible connection of the pure antitheses. An almost inexhaustible number of forms may be made with these eight blocks by allowing even and uneven sides to the center. Each one will be different from all the others and yet each one will come under the law of radiation or circumscription or some combination of

the two. So the child may be led into plays which allow almost unlimited choice and yet which require conformity to fundamental conditions, until he begins to feel if not to realize that true freedom is consistent with obedience to law, that it is *voluntary* joyful obedience to law. Does this seem to be too strained an assertion to the casual reader? It will not when he or she comes into the true Kindergarten and sees how each exercise is accompanied by play. The intelligent mother and genuine kindergartner guide the emotions of the young child and these train his inclinations of mind as well as body along the right lines. Both renew their own youth by becoming as a little child with their children, entering heartily into their small experiments and experiences, seeing the great new wonder-world with their eyes, yet ever with the inspiring realization that through joyous childlike play they are leading the young mind to think God's thoughts after him.

#### ANALYSIS OF THE GIFT.

1. Description of the gift.
2. Relation to previous gift.
3. Salient characteristics.
4. Forms illustrated.
5. Relation to the child.

## CHAPTER V.

## THE FIFTH GIFT.

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The Fifth Gift is a three inch wooden cube divided twice by each of its axial planes into twenty-seven one inch cubes; three of these are divided diagonally into halves, making six triangular prisms, and three more of these cubes are divided diagonally into quarters, making twelve smaller triangular prisms.

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The Fifth Gift is the twice-told-tale of the division of objects according to their axial planes of length, breadth and thickness. Only by clear cut, distinctly understood divisions of space-filling objects can the child gain a conscious knowledge of both the analysis and the synthesis of the material with which he has to deal. That this clear-cut division should be as simple as possible and as fundamental is self-evident.

**DANGER OF MECHANICAL WORK.** In this way can the child attain surely and quickly to a mastery over objects and begin creative work, instead of floundering helplessly in the chaos of forms that surrounds him. Worse still is a mechanical obedience to outside authority, either a blind obedience to a teacher or an imitation of a machine made design; worst of all is following of his caprice of the moment. A knowledge of the fundamental nature of form gives the child confidence in himself and thus helps him to go forward in definite and original use of his materials.

A Kindergartner, who was fully aware of the freedom which came from the conscious mastery of the elements of form, one day instructed her children to inclose an equal six-side surface with peas and peasticks. This done, she showed them how to change the form into a doll's table by adding six more sticks for legs to the table, a bit of tissue paper was then pasted over the top of each table and the "hand made toy" was complete. The next morning a boy of about five years of age brought her a box of home-made tables which he showed, one at a time triumphantly exclaiming, "See here is a *square* table"! "And here is a *triangle* table"! "And here is a *five-sided* table"! Then looking up he added, "*I can make any kind of a table I want to*"! Contrast this with the child who stupidly follows a set pattern made for him, much as the old-fashioned "stint" was sewed in a seam or knit in a sock.

### THE THREE

### SERIES OF

### BUILDING GIFTS.

The building gifts of the Kindergarten may be divided into three distinct series, the cubical series, the brick series or oblong prisms and the curvilinear series. In the Third Gift we have the beginning of the cubical series.

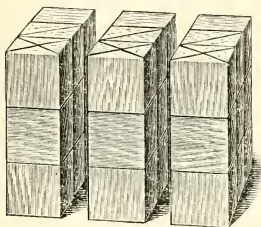
### CONTRAST THIS

### GIFT WITH THE

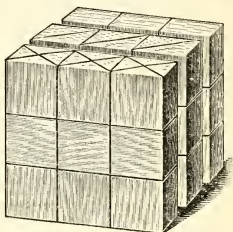
### THIRD GIFT.

In the Third Gift we present the child with the cube as a whole and then divide that whole *once* into two equal halves, according to its length, breadth and thickness. The natural progress is from one to two, hence the next new gift

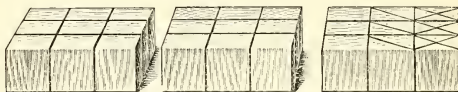
of the cubical series must divide *twice* in each dimension. This as a result divides the cube into *three* equal parts, according to its length, breadth and thickness. (See Figures 24, 25, 26.) As the original



No. 24. Showing the two vertical cuts in the Fifth Gift, by means of which the gift is twice divided from back to front.



No. 25. Showing the two vertical cuts in the Fifth Gift, by means of which the gift is twice divided from left to right.



No. 26. Showing the two horizontal cuts in the Fifth Gift, by means of which the gift is twice divided from top to bottom.

Fifth Gift is three inches long, three inches wide and three inches high, this twofold division of it produces twenty-seven one-inch cubes. So the unit of measurement of one inch, remains the same in this Gift as in the Third Gift. And the number three and multiples of three, are now brought to the child's consciousness. It may be well for the Gift to be thus presented to the child at first as twenty-seven one inch cubes resulting from the double division of the three-inch cube. After he is somewhat



accustomed to the handling of the increase of material, and also to the unconscious counting by threes, as he builds and unbuilds his gift, we may make the next step forward.

**NEW FEATURE  
OF THE  
FIFTH GIFT.**

So far, we have merely developed an increase number of parts but have made no advance as to forms or any change of axial planes. As the Gifts must unfold if they are to keep pace with the child's unfolding powers, a new feature must be added, not capriciously or arbitrarily, but logically developing as the next natural step in the evolution of form. This next step is, when considered from the internal nature of form, the slanting (or the making oblique) of one or two of the axial planes which heretofore have been perpendicular to each other, resulting outwardly in an oblique cut from one corner of a one-inch cube to the opposite corner. This not only produces the oblique line that connects the back and front and right and left edges of the square face of the cube, but it also introduces the triangular prism, which is the form that emphasizes the new number, *three*.

In order that the child may not become confused by the new element, only three of the cubes are thus divided diagonally into half cubes, and in order that the opposite diagonal may also be given, three more of the one-inch cubes are divided again diagonally in the opposite direction, making out of each cube four right isosceles triangular prisms or twelve

smaller triangular prisms. The triangular prism has already been suggested in many of the combinations made by the Third and Fourth Gifts, especially among their "forms of beauty". It has, however, been but a transitory shadow, a hollow form coming and going with the movement of the blocks. It now becomes a permanent form distinctly and easily derived from the already familiar form of the cube.

Trivial as this change of form may seem it opens to the child vast new fields of discovery in many directions. In the world of nature on the one hand it leads the young mind toward the ready classification of the second large division of crystals, namely the rhombohedral crystals.\*

On the other hand, this new diagonal cut and all that results from it leads the child in the world of Man's creation into the beginning of the geometric knowledge of right, acute and obtuse angles, usually called by the child square,

\*Froebel classifies all crystals under three general heads. 1st. Those whose three axial planes are perpendicular to each other, as the cube, square and oblong prisms. 2d. Those in which one or more of the three planes are oblique to the others; rhomboidal and trapezoidal prisms and pyramidal forms, and 3d. Those that have more than three axial planes, the polyhedron. "See Education of man," chief groups of instruction. Froebel would have the child begin his study on the organization found in nature by examining and handling "the fourteen crystal forms" in the transition or connecting class, and this diagonal cut of the Fifth Gift is intended to prepare him for this study of nature's geometrical arrangements in her mysterious and fascinating world of crystals. Of course the oblique line and the acute and obtuse angles which may be formed by this cut of the Fifth Gift are found in the later creations of the plant world among the ramifications of the branches and radiations of the leaf veins, and still later in the structural study of animal life.

sharp and blunt corners. (These are more fully developed by the sticks later. See chapter on "stick-laying" in Education by Development, also chapter on "The Line" in Psychology of the Play-Gift), but they appear in the Fifth Gift and are noticed by the child. A step is made into trigonometry, also, by the new element, the triangle.

**VALUE OF THE  
OBLIQUE CUT OF  
THE FIFTH GIFT  
IN ARITHMETICAL  
TRAINING.**

A very perceptible advance in arithmetical combinations of threes and multiples of threes. Each of these new possibilities and all the mathematical forms that arise from them should come to the child at first incidentally as he learns to divide and then to build with his new play-thing.

**VALUE OF THE  
OBLIQUE CUT OF  
THE FIFTH GIFT  
IN ARCHITECTURAL  
BUILDING.**

It is readily seen that this oblique cut brings a great addition architecturally to the building that can now be made by the slanting surface of the triangle.

The building instinct of the race is followed in a most interesting fashion. The Third and Fourth Gifts are limited architecturally considered to the miniature suggestions of the low flat-roofed buildings of the Egyptian and other early races. With this introduction of the right isosceles triangle we begin to see some resemblance to the entablature of the Greek temple (which by the way becomes much more pronounced when the Fifth and Sixth Gifts are used together, as will be seen

later). The sloping roof of the Gothic architecture is also visible in many of the forms made from the Fifth Gift. This is a valuable addition. Not that the child of five or six years knows anything about Egyptian, Greek or Gothic architecture, but that a feeling for right architectural expression may be awakened by his Kindergarten play as well as a feeling for right color combinations, right musical tones, right bodily expressions or any other art form of utterance. It would be well for children from six to eight years of age for whom these gifts are also valuable, to have beautiful pictures of the great architectural buildings of the world on the wall near by when they are given the Fifth, Sixth and Curvilinear Gifts, and begin to play with them freely and creatively, as the elements of all really great architecture are contained in these simple building gifts; even including architectural decorations which are easily made from the elements of the Curvilinear Gift. This is not forcing the child into interests beyond his stage of development; for architecture is one of the great world-languages giving a silent but eloquent record of spiritual exaltation or debasement that can be felt in varying degrees, by the youngest child or the most ignorant adult. If urban life is to be the life of the majority of mankind hereafter, beautiful architecture will have to supply the inspiration and purifying influence that has hitherto come from the constant and intimate contact with nature, and like the influence of nature

the majesty, purity and sincerity of noble and suitable buildings will be absorbed unconsciously by children in their play as well as by the toiling masses. This could be proved by many testimonies. There is no more need that our great cities should be ugly than that they should be filthy. The beautiful cities of Paris and Washington already prove the truth of such an assertion. With this thought in mind it is well for the mother, kindergartner or primary teacher to inform herself a little on the subject of architecture and with a growing knowledge of this noble art she will realize the true, significant and wonderful educational value of these three building gifts.

**THE CONNECTION  
OF THE FIFTH  
GIFT WITH  
OTHER GIFTS  
AND OCCUPATIONS.**

The oblique line is found again among the edges of the triangular tablets, in various exercises with the sticks or embodied line in the kindergarten sewing and linear drawing, the paper folding and paper cutting, and most significantly in the very important but much misunderstood peas-work. Again the child creates it in his weaving, his strip pasting, and his seed laying.

**SYMBOLIC SIGNI-  
FICANCE OF THE  
OBLIQUE LINE.**

It is also emphasized in various bodily plays and directions in his marches, until by many and varied experiences he learns to *feel* the inner significance of upright and oblique which is simply the mind's own inherent transfer-

ring of the meaning of a fundamental sense-impression from a mere external attribute to an internal or spiritual characteristic.

A little girl of five years was sewing a card of upright lines. Some exercises or story which had preceded it caused her to call the lines "soldiers marching". After a time the teacher noticed that she had missed the hole into which the needle should have been put and had put it through the next perforation, causing one of the lines to slant. "What is the matter with that line"? said the teacher, pointing to the oblique line. The child was puzzled for a moment, then looking up she said, "I guess he is sick. He is no good for a soldier, is he"? "Then you had better take it out", said the teacher, "or make it stand straight". This the child did cheerfully, seeming much pleased when again she presented her card for inspection to be able to show a perfect row of upright lines. This is but one instance out of many that could be given to show how a child naturally feels the inner significance of form. Though, of course, a symbolic use of form can be pushed to an absurd degree.

This, Froebel insists, is one of the important things gained by the familiar use of the Fifth Gift. (See "Education by Development", page 264), and again he appeals to the common usage of the terms the *inclinations* of the mind as compared with the upright principles which should govern it. This, let us repeat once more, is the so-called mysticism of

the Kindergarten, so objected to by some educators, but it is a principle which is the deepest claim of the system to be called "the new education" or the education that nurtures and develops the religious nature of the child, not through dogmatic theology but through feeling of the inner meaning and relationship between life and the world about us. The utilized motor nerves, trained hands and exercised will are all secondary considerations in this "New Education", and are all to be used in the service of this higher God-Consciousness which comes from the gradually learning to feel and to see that the Divine Mind is speaking to us through the commonest things about us. There will be more to be said on this subject when we come to the curved and the crooked line.\*

It seemed necessary to introduce this subject here in order that the young student might realize the value of "the forms of feeling" or forms of beauty so-called, as they are peculiarly rich in possibilities in this direction.

**THREE CLASSES OF FORMS PRODUCED BY THE FIFTH GIFT.** The Fifth Gift like all the other Gifts of the Kindergarten may be used to illustrate or suggest "*Forms of thought or cognition*", "*Forms of feeling or beauty*" and "*Forms of use or life forms*". It may be well for the mother

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\*We would refer the earnest student who desires to more thoroughly enter into the study of this great subject of symbolism to make the careful reading of Dante's "Divine Comedy," and he or she will be richly repaid in more ways than one. The student who wishes to psychologically understand the place which the symbolizing activity occupies in the mind's growth, is referred to Dr. Snider's chapter on symbols in "Psychology and Psychosis."

or kindergartner and especially well for the primary or second grade teacher to study first the geometric possibilities of the Gift. Though, of course, the child will begin by building *life forms or forms of use*. But the mother or teacher must know the possibilities of the Gift in order that she may be ready when the time comes to add this or that needed suggestion to the child's play, else the play soon becomes meaningless and the blocks are cast aside and the great assistance which they could be in helping to organize his world will be lost.\*

Another large advantage to be gained by the mother's or teacher's previous knowledge of the possibilities of the Gift is that the child feels an increasing trust when led steadily and surely to a satisfactory goal. Whereas, if the suggestions or directions given him are vague and unsatisfactory in results, he begins to distrust and disregard them. All children worship skill, for it is a sign of excellence in some particular direction, and the human heart is so constituted that it longs for perfection and turns in admiration towards any approach to the perfect deed, be it large or small.

When the child discovers the law that lies behind all the forms that he makes he becomes a law unto himself, and boldly proceeds to create regardless of outside authority.

A little boy of five and a half years on being given

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\*In proportion as the leader is thoroughly acquainted with the material of the Gift will be the profit of the plays to which he or she will incite the child, and the pleasure of such plays to leader and child. "Pedagogics of the Kindergarten," page 219.



a direction in building a form of beauty with the Fifth Gift was then told to find the opposite way of moving the blocks. After puzzling over it for a time he made the right change and then exclaimed, "Ah, now I have got the hang of the whole thing"! In a few minutes, however, he stopped. The Kindergarten began to make a suggestion as to his next move. "Hold on"! he cried, "I am just trying to find that opposite. I'm all right". One such mastery as this is worth a dozen toys constructed after a given pattern educationally considered at least, although it does not show at the time as would a cabinet of crude hand-made toys. Is not this same confidence shown in all the transactions of life, after they have been mastered, from dancing, swimming and skating, up through all the activities of the domestic and commercial world, until at last the soul learns that greatest of all laws, namely, that "whatsoever a man soweth that also shall he reap," is true in all lines of life, be they material or be they spiritual?

Rational power, not a capricious despot, governs the universe, and a humble and a contrite heart is more acceptable in His sight than ceremonies and burnt offerings. This was the cry of all those mighty prophets of old who preached a God of Righteousness rather than a God of Israel. This has been the insight gained by all profoundly deep and noble lives ever since. And Froebel would have the little child begin to understand this truth that

*law governs all things* even in his play with his blocks.

# GEOMETRIC

## FORMS, OR FORMS

### OF COGNITION.

Let us again return to the three ways of using the gift. In the making of geometric forms the law of evolution should be obeyed as implicitly as in the making of life forms or forms of beauty. One form evolves or may be made from a preceding one without destroying or taking to pieces this preceding one, but by merely transforming it. The educational value of the gift is much marred unless the gift can be given as a whole, and its parts be distinctly related to one another. Psychologically, it is well to begin with simple forms, advance to more complex and then return to the simple. Therefore, a large box of blocks from which each child may take the required number will not do; though the very expensive boxes now in use are not necessary.

For the Kindergarten child it may be enough to learn how to divide the cube into three equal parts from right to left, back to front, and top to bottom, saying or singing as the case may be:

One whole, three thirds!

Three thirds, one whole!

Again

One whole, two thirds and one third,

Two thirds and one third, one whole.

Here we must again urge that such exercises shall not be mere drill work, but a joyous expression of a discovery of a new truth.

When familiar with these simple arithmetical facts the child may next be asked to find out how many cubes there are in one third, in two thirds, in the whole? Again, how many square prisms he can make? If the children are well advanced they may be asked to tell the dimensions of each square prism, as for example, "I have made a square prism one inch wide, one inch high and two inches long", etc. This, however, belongs properly to the transition or connecting school, where definitions are given to experiences and *words* are emphasized which sum up former activities. In the Kindergarten it is enough if the child knows square prisms when made of different sizes. These different square prisms may be built into a monument, especially if two or more children build together. As, for example, on the top of a square prism that contains sixteen cubes, may be placed one containing eight cubes (with its corners in the opposite direction from those of the foundation square prisms), on this may next be placed a square prism containing four cubes (again reversing the position), and on this one of two cubes. Crowning all can come a square prism made of two quarter cubes or one half of a cube each placed in a position opposite to the one preceding it. Such a movement may be played with as a form of life, and a story be told of some hero for whom it is erected. It will be seen later that this monumental form also serves as a starting point for the forms of beauty or symmetry. See "Pedagogics of the Kin-

dergarten", page 224. Yet in this play the child is becoming familiar with square prisms of geometric ratios, 16, 8, 4, 2,  $\frac{1}{2}$ , or *vice versa*.

**EXERCISES FOR PRIMARY GRADES.** It may be well to let the children paste five squares one on top of the other, of a size corresponding to the square face of the prisms, namely, the first darkest or lightest, as the taste may prefer, would be a 4-inch square, the next a square of  $2\frac{3}{4}$  inches of a lighter or darker tone of the color, the next a square of  $1\frac{1}{2}$  inches, then one of 1 inch, and last as a center a square of  $\frac{3}{4}$  of an inch. The rosette effect thus obtained is always pleasing to the child, and he is at the same time learning in another way similarity of form through difference of area. The square should be prepared beforehand by the kindergartner for young children, but a child of six or seven will delight in measuring the top of each square prism and then making his own series of squares according to this measurement. The geometric ratio of such a series has in it a kind of rhythm that pleases the child's feeling of proportion.

Of course, like exercises can be had with other geometric forms, as for example, ask the child "How many sizes of triangles can you make, or trapezoids (boat-shaped forms)?"

Various combinations of these ever increasing or ever diminishing forms of similar shape may, of course, be made, that of hexagonal prisms being es-

pecially attractive. These again should be followed by other exercises in which the same forms differing in size appear ; sticks, slats, drawings, etc., are easily used in these plays.

In the chapter on the Third Gift, we have already spoken at length of the value to the child of learning to discriminate between large and small.

**THE PYTHAGOREAN THEOREM.**

For children from six to eight years of age it is an interesting exercise while they are comparing square prisms of different sizes to have them join two one-inch cubes by their corners so as to form a right angle, then ask them to connect the two extending lines of the right angle with another square prism, thereby inclosing a triangle. The blocks contained in the last made square prism may now be counted, and will, of course, be found to be two, or the sum of the other two sides. Next, a right angle may be made of four one-inch cubes, and again another square prism be constructed of such length of edge as to exactly inclose another triangle, the right edge of which are the two sides of the right angle just made. The number of cubes needed to make this larger square prism may again be counted, and again it will be found to be exactly the sum of the other two sides, and so on, until the child discovers for himself the great Pythagorean Theorem over which many a High School student of fourteen or fifteen has floundered and stumbled, namely that the square of the hypotenuse of any right angle triangle is

equal to the sum of the squares of its other two sides. This is but one of the many geometric propositions that come through perfectly natural experiences with the use of the Kindergarten blocks, long before abstract geometry is thought of.

After the child has become familiar with forms that are like in shape but unlike in content or size, it is well to lead him to discover forms that are *dissimilar* in shape, but that are made with the same number of blocks. In the "Pedagogics of the Kindergarten" we find three distinct series of these set forth, in each of which are three steps.

These are given as follows:

#### First Series.

1. A square prism of four cubes,
2. A prism with trapezoidal base of four cubes,
3. A prism whose upper and lower surfaces are isosceles triangles of four cubes.

Half cubes, of course, are used in making some of these forms.

#### Second Series.

1. An oblong prism two cubes long, one cube wide,
2. A rhomboidal prism two cubes long and one cube wide,
3. A prism whose upper and lower surface are isosceles triangles made of one whole and two half cubes, each of its lateral sides being of the length of two cubes, and one of its sides serving as its base.

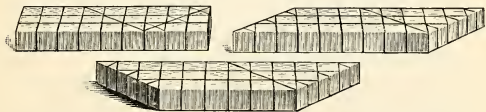
## Third Series.

1. One small cube,
2. One square tablet of four cubes,
3. One right column whose base is one inch square and whose height is four inches.

Then follows a number of mathematical problems as to the estimating of contents of various solids, which would take the use of this gift as far as the third grade. (See "Pedagogics of the Kindergarten", (Appleton Edition, pages 217-218).

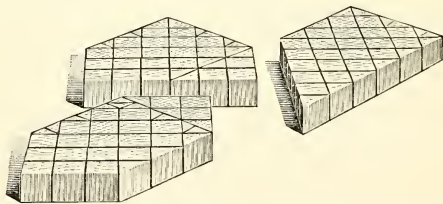
There is a danger in allowing the child to remain too long in *concrete* mathematics; he loses the mental strengthening that comes from mental calculations. Sense-impressions are important, but they are only one part of the great process of education.

An interesting series of exercises arise from the making of oblong prisms, hexagonal prisms, pentagonal prisms, octagonal prisms of various heights. But the chief characteristic of this Gift, the triangle, is best brought out by a series of surface forms, in which the oblong is changed into a rhomboid by the transfer of one large triangle (composed of three whole and three half blocks) in different relation to the rest of the form, thereby making an oblong, a rhomboid and a trapezoid.



No. 27-28. Showing the first three moves in a sequence of "forms of knowledge", by means of placing one of the large triangles (composed of three whole cubes and three half cubes) in different relation to the rest of the form, thereby making an oblong, a rhomboid and a trapezoid.

the right to the left hand side of the original figure. This form is again changed into a trapezoid by merely reversing the triangle just moved (see Fig. 28). This again is changed into a pentagon by moving the large triangle just placed, to the front of the figure and there joining to it a like sized triangle taken from the opposite side, uniting the two into a still larger triangle whose longest edge touched the front edge of the remainder of the blocks (see Fig. 29). This may again be changed into a trapezoid which has three straight edges, usually called by the children "the shoe trapezoid", by withdrawing a similar triangle at the right of the figure so that its right corner and one sharp corner touch the central figure and its longest edge is to the front (see Fig. 30). This again changes into an elongated hexagon by transferring this last placed triangle to the back of the figure with its longest edge touching the figure (see Fig. 31). Such exercises, of course, are for the older children, but can be produced in miniature, as it were, by a one-inch cube



No. 29-30-31. Showing last three moves of sequence in "forms of knowledge" by such changes as result in pentagon, shoe-trapezoid and hexagon.



and two cubes divided into halves, thus having four triangular prisms. In either of these exercises the triangle is emphasized. They also show the evolution of one form from another.

Having made a somewhat hasty outline of the mathematical possibilities of the Gift, in order that the mother or teacher may know best how to help the child in his building, let us turn now to the life forms, or forms of use.

**THE LIFE  
FORMS.**

*These are the forms with which the child will begin his experience with the Fifth Gift.* Be it always remembered that the child naturally follows the path the race has followed, namely, first, forms of use, then forms of beauty, and then forms of truth or exact science.

Here we enter an almost endless field of representations of objects of life about us. Three things must always be kept in mind, however, first, that the gift must be presented as a whole and systematically divided; secondly, all parts must be used in order that the relation of parts to the whole may be kept in mind. Again, it is best to have one form evolve from another. This is easily done by suggesting that this form may be *changed* into another form. It is not necessary, however, that a long and tedious series of forms be made. It is enough if the child sees that one form can evolve from another and learns to prefer orderly changing to chaotic destruction and rebuilding. In this transforming of one form into another he gets a relationship of lines

and angles that is invaluable to him in his constructive work later on, and also a habit of looking for connection and relationship in other matters.

It is best to have the blocks so arranged in their boxes that when the box is turned upside down on the table, and its lid is slipped out, and the box gently lifted away from its blocks, the divided cubes will be on top. This is best both for sake of the convenient handling of these divided parts, and because it at once presents the child with the new elements which have come with the new Gift.

**TIME FOR THE FIFTH GIFT.** The Fifth Gift is usually given at about the beginning of the fifth year, and can be profitably used until the end of the eighth year. The child generally begins to construct the familiar objects about him, such as houses, chairs, tables, walls, sidewalks, lamp-posts, etc., etc. By removal of one of the top rows of the blocks and placing it at the front he makes a set of stair-steps. By placing the front row on top of the middle row, and then using the cubes that are divided into halves for sloping roofs on either side he makes a house. This can, of course, be varied by placing one of the top blocks at the front of the house for a storm porch and another at the back for a similar protection from winter winds. This leaves a chimney in the middle of the roof. This chimney can, of course, be placed at one side by removing one of the half blocks and placing in its stead a whole cube. The half cube can be placed

on top of this whole cube and a chimney hood is made, or the chimney can be two blocks high by placing one of the blocks that has served for a storm porch, on top of the low chimney, and the divided block with its slanting face down on top of these two. Or the house may have two chimneys, a tall one on a front corner and a low one at the opposite back corner. A dozen such variations can be made so that no two children's houses are exactly alike. Then can follow any amount of gleeful play, which nevertheless can have an inner content, which will lead the child to understand, and value his home life more than he did before. The rooms in the house may be counted and named. The sunny south room may be chosen for the baby's nursery, with mamma's room next, and so on. It is very interesting to let each child name the rooms he wants in his house. Some will omit the kitchen entirely, some the parlor, some the bath room, some the guest chamber. This will give occasion for talks concerning the purpose and importance of each room, and many hints and suggestions as to the ideal home may thus be instilled without any moralizing whatever. It will be a pleasing, as well as a profitable, exercise, to have *all* the children next make *each* house that has been built by the others, beginning with the simplest, or the one nearest resembling the cube, and passing from that to the next simplest and so on. In this way each child's ideas of domestic architecture are enlarged as well as his power of participating will-

ingly in the thoughts and plans of others. It is a natural and usual step from building houses and talking about the rooms that are in them, to the constructing of household furniture. An arm chair can be made by placing the front row of blocks on top of the back row, then removing the middle cube of the middle row, dividing it into halves and placing each of these halves on top of the remaining cubes of the middle row, with their slanting faces sloping to the front and their sides touching the remaining two cubes of the same row, thus making arms to the chair. This is easily changed into a writing desk by placing the blocks representing the two arms of the chair on the top of the back row of blocks, with their slanting faces at the right and the left. The whole may be quickly changed into a bed with a high head board by lifting off the two top rows on the front of the desk and placing them in front of the two lower ones. It seems needless to multiply examples, as any child will discover more forms than we could describe on a half dozen pages. In case the children are timid or vague in their building the kindergartner may give them courage or increase their interest by dictating some such sequence and naming the objects. But she must guard against naming, from her own experience, objects that have not come into the child's life, either by actual use or by means of story or picture. The adult who may be lacking in imagination is referred to the Kraus-Boelte "Kindergarten Guide" or to "The Gifts of

the Kindergarten" by Hermann Goldammer, for many attractive and suggestive forms with which to start a series, around which can cluster any amount of imaginary home activities. As the child grows older it will be well to make these temporary forms of chairs, desks, beds, etc., into permanent forms with pasteboard or peas and sticks, or even a little later on with bits of wood and small nails. But he gets his first ideas of forms and proportions of forms from these transitory easily changed sets of blocks. They are better suited to his present stage of growth, and he does not get discouraged in his efforts at construction as he would were he put at more permanent constructing. Thus, too, is avoided the temptation for the mother or kindergartner to do the more difficult part of the work for the child, while letting him claim the result as his work. This is not only morally wrong, but it is robbing the child of the slow but sure growth of a comprehension of form and of that skill of hand which is acquired by his doing the work himself.

It is an easy transition from the making of houses and their furniture to the planning and building of fences, sidewalks, and other familiar surroundings of the home. Many sweet and loving little lessons may at the same time be taught concerning the loving self-sacrifice necessary in a true home. So much has been suggested on this subject by Froebel's "Carpenter's Song", that we refrain from further detail.

As the child lives in an environment of the Trade-

world and certain forms of the State and the Church, as well as in the Home, he will soon begin building shops, factories, churches, etc., with his blocks.

We cannot forbear giving an amusing, and at the same time significant, incident which took place in one of our Kindergartens. The table where the children were building was somewhat crowded. One little boy of five asked if he might not build on the floor with two boxes of blocks. "What do you want to build"? "A great big factory where they weave things", answered the boy. Consent was given, and soon he was busily at work on the floor. Then another boy asked to take his building material to the floor also. "What are you going to make"? asked the first boy of the second. "I'm going to build a church with a high steeple", answered number two. "Oh, dear", exclaimed the first boy in a worried tone, "then I'll have to move my factory over to the other side of the room! Churches and factories are way far apart"! This was a revelation to the Kindergarten, and she, too, suddenly decided to build on the floor, and made a sidewalk from the church to the factory, much to the delight of the two boys.

We indicate a few of these forms in the following interesting sequence which was made by Miss Grace Fulmer,\* in which she embodies not only the in-

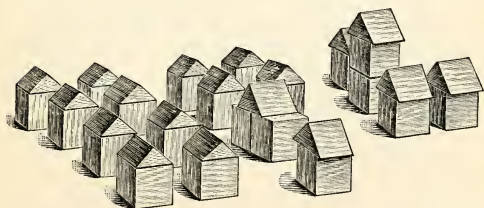
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\*Miss Fulmer, our colleague in the Chicago Kindergarten College, has done much original and extremely interesting work both with the Gifts and the occupations, much of which shows the artistic results that may be obtained with these simple tools, if one has the artistic feeling and enough training to see effective results in mere elements, thus proving that "the fault is not in our stars (in this case in our tools) but in ourselves that we are underlings" is true in the Kindergarten World as elsewhere.

creasing size of the buildings in proportion to the number they serve, but also at the same time the growth of the ethical institution of civilization which would come gradually and unconsciously to the child in the way of presentiment, if the mother or kindergarten understands the work she is to do for him. We will give the description of the sequence in Miss Fulmer's own unique words: "In the beginning of the sequence the blocks are used almost as individual blocks, then by a careful though simple readjusting and uniting of the parts, a new and larger whole is developed, until at last the forms culminate in an art museum or public library which stands for the spirit of the life of the whole community.

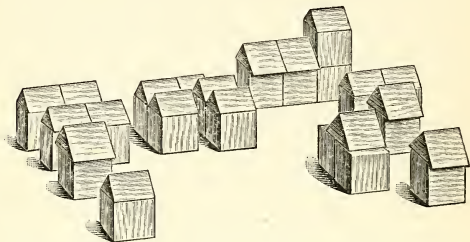
"In such a sequence the child will get suggestions of the relation between architectural forms and their uses, his impressions of the growth or development of one thing from another by the direct and immediate change of the blocks from one form into another.

"The process of the evolution of civilization is also



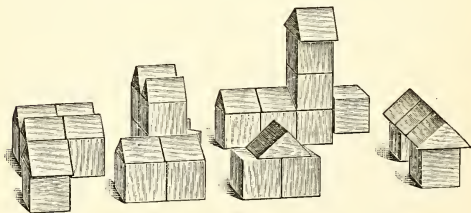
No. 32. Showing a village whose primitive life is expressed by its general supply store, simple meeting house and small homes.

limited in the growth from the simple village (see Fig. 32) with the many small homes, differing but slightly in their architectural construction to the larger village with its larger homes, which increas-



No. 33. Showing small town whose enlarged life is expressed by two-room dwellings, school house, increase in number of stores, and more commodious church.

ing prosperity demands, (see Figs. 33 and 34) ; from the simple village store where one inhabitant can exchange commodities with another, to the larger

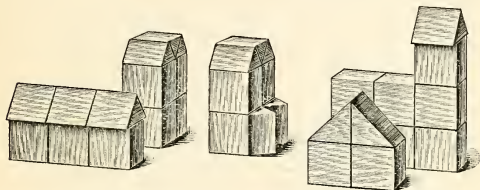


No. 34. Showing increased size of the town, as indicated by its railway station and the tall spire to its church.

stores, which are so constructed with extended windows that they attract the attention of the passer by

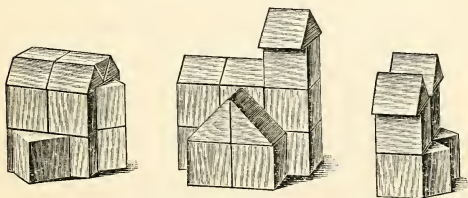


to the fact that they supply his growing comforts as well as his meager necessities (see Figs. 35 and 36) ; from the simple town hall (see Fig. 35) where the few inhabitants of a village meet to discuss matters of common interest and settled disagreements, to the



No. 35. Showing larger town with its two-story houses, rows of buildings, regular streets, and more commodious shops and places of worship.

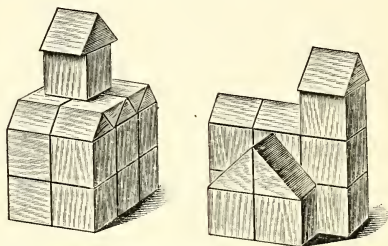
court-house with its large dome, which suggests the administration of universal justice (see Figs. 37 and 38) ; from the few children studying together in any available place to the school house with its generous



No. 36. Showing library or other public building, increased size of church with chapel or "church house" attached, and larger dwelling houses.

provision for all the children of the community (see Fig. 36) ; from the simple frame meeting-house to

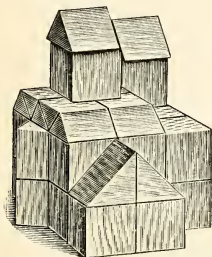
the brick or stone church (see Fig. 34), with its tall bell tower from which those who live at a distance may hear the voice calling them to a common place of worship, where all men are supposed to be recognized as brothers with one Father over all; from rough country roads for driving from one village to another, to the railway which is the magic means



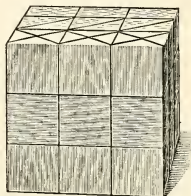
Nos. 37-38. Showing still larger buildings in the growing city, such as court house, etc.

by which the growing village changes to the thriving town, with its railway station with its long roof (see Fig. 34), suggesting a place of mere temporary shelter for the traveler who wishes to go farther; from those things which administer to man's necessities, such as dwelling houses, stores, factories, etc., to those things which administer to his mere æsthetic nature, such as libraries, theatres, conservatories and art museums (see Figs. 39 and 40). Thus we see with an inner growth comes the necessity of a corresponding external change, for as the social life becomes more intricate and more complex with the

increase of population and the advancing demands of urban civilization we see on all sides that the external movement of the increase in size and form of the buildings is in harmony with the inner movement.



No. 39. Showing museum, theater or other place of amusement necessitated by the congested life of a large city.



No. 40. Showing large city building, where several activities are carried on under one roof.

“In some such way as this a presentiment of the universal history of the race from the primitive simplicity of the barbaric settlements to the complex civilization of our modern cities is indicated.”

The child will show in his free play, if intelligently watched, when he is ready for an advanced form or new suggestion or direction from the kindergartner. Though, as before said, it is well some times to have exact dictation and some times work in which each reproduces the forms made by the rest of the group of children. Any thoughtful and observing teacher can tell when such help is needed.

**FORMS OF  
BEAUTY.**

So much has already been said about the forms of beauty that are made with the Kindergarten Gifts and their real significance, that we will pass at once to some practical suggestions as to a systematic use of them in the Fifth Gift, for the possibilities of this Gift are seemingly numberless, it can easily produce thousands of forms, each different from all the rest. It will readily be seen that the child might soon become swamped, as it were, in the innumerable combinations and re-arrangements that can be made. ("A lack of classification is the bane of all combination plays for children", says Froebel.) It is well, therefore, to let him see that there are large possibilities, but it is also well to have him select or choose consciously along what line or lines he will work, and by keeping the one central thought in mind he will avoid confusion, and at the same time learn that there can be great freedom under the law.

**FORMS OF  
SYMMETRY  
FROM THE  
SQUARE AND  
TRIANGLE.**

As for example, the symmetrical forms are best worked out either from the square or the triangle. If the square be taken as a starting point, it should be adhered to; if the triangle be taken all the movements of the blocks should be in accordance with the triangular shape. To illustrate this point, place nine of the whole blocks as a center, forming with them a square of three inches. Let the corners of this square point to the front and back,

and right and left. With three of the remaining blocks and three half blocks, make a triangle; place this with its slanting edge toward one of the corners of the central square, two inches away. Make three other similar triangles and place them in corresponding positions (that is with slanting edge toward the central square two inches away from it), and you will have "A point of departure" or "fundamental forms", from which an incredible number of forms of beauty may be made, and yet a definite law be kept in mind through all the changes. As for example, the four corner cubes of the central square may be moved *outward until they touch the front and back, and right and left corners* of this same central figure, first with their corner or upright edge, then with a face or horizontal edge. Then they can be moved outward, until they touch the longest edge of the surrounding triangles with their edges or their side faces, then they may touch them with their corners, or upright edges; or they may be placed between the triangles, again touching by the edges or by the corners. Again they may be placed *outside* the triangles, touching its square corners with one of their faces as with a corner. Then they may travel back again by the same moves, to their places in the central square.

We have thus made eight distinct figures by the moving of one set of blocks only, and yet have kept in mind always that the liberated blocks are moving from the center toward the outer limit of the figure,

and that every step has a twofold movement, namely, touching by its edge and then touching by its corner.\*

It will readily be seen that eight more figures may be made by using the four cubes of the central figure that are in the middle of the back right row of blocks, the middle of the front left row, the middle of the back left row, and the middle of the front right row (leaving a single cube in the center touched at its four corners by the corners of the four remaining cubes of the original central square). The four cubes that have thus been liberated can now begin their journey, so to speak, to the *outer* rim of the figure, in exactly the same way that the other four did, namely, touching first the corners of the central figure, first with one of their edges, then with a corner, then touching the middle of the inner edge of the surrounding triangles, then placed between the triangles, touching them with first a corner and then an edge. Then, of course, reaching the outer limits of the figure, touching the square corners of the triangles, first with one of their edges and then with a corner. These may also retrace their steps back to their original positions in the central square, and eight more figures entirely different in appearance from the first eight have been made. If the child chooses he can next move both the corner cubes of the central square and the cubes that are in the middle of each row, leaving only the one

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\*Or, if the reader prefers it touching by a face and then by an edge, the first form of description is in our judgment to be preferred, as these forms of symmetry are approaching the flat surface.

central cube, with these eight cubes traveling from within outward first by their edges touching the outside triangles, and then by their corners, we have sixteen more figures, each different from all the others, and yet no sense of repetition or confusion, because the young designer has kept in mind the two principles, i. e., "to move each time from center toward circumference, and to touch first by edges, then by corners, and has felt certain amount of pleasure in obeying the law, for it has shown him a kind of rhythmic movement. A song without words has been sung, and we realize the better what Froebel meant when he spoke of the "rhythmic dance of the blocks".

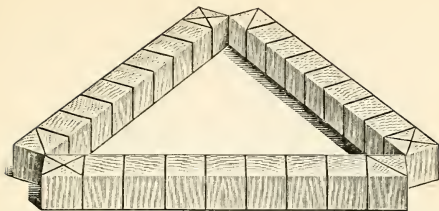
It is easy to see that a similar series of forms may be created by using the four *outside* cubes that make the square corners of the triangles. These can move *inward* toward the center touching each place before designated first with their edges, then with their corners. This new series of forms of beauty may be made with almost kaleidoscopic rapidity and yet without the confusing sensations that the kaleidoscope brings, as the child knows at every step just how he has made it. The blocks can now retrace their steps to their post of honor at the outer extremities of the figure. Now the middle triangular half cubes may be taken from the center of the long edge of each of the circumscribing triangles and these may be moved first toward the center, then toward the circumference, touching each time first by their

longest edge and then by their square corner, and another series entirely different from any of the former is now the child's from which to choose. We have in this brief space created forty-eight distinct forms, all symmetrical, all pleasing, all easily made, yet all conforming to the one law "from within out, from without in", touching by edges, touching by corners. The child may choose any one of these and now make it permanent by transferring in paper to cardboard. The only thing required is that he shall *know* what he has done. Namely, that he has moved the inner cubes outward, or the outer cubes inward, and has made them touch the general figure by their edges or their corners. From this time on he can truly and intelligently create as many designs as he may choose, learning at the same time, as has been before stated, a delight in obeying the law that brings order, harmony and beauty into existence. And thus the plays and play-things of the child begin to foreshadow to him his own nature, and the nature of the universe, and to become truly educative.

**FORMS OF  
BEAUTY WITH  
THE TRIANGLES.**

Let us suppose that he divides his Fifth Gift into thirds, and of each of these thirds he makes a nine-inch square prism. These can now be joined into an equilateral triangle (see Fig. 41), as "the point of departure" or "fundamental form". Here the number three preponderates. Again an endless variety of forms may be made, following

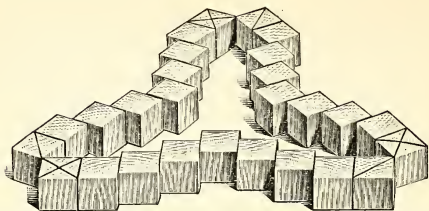




No. 41. Showing the equilateral triangle, from which a very interesting series of "forms of beauty" may be derived; by pushing the blocks in toward the center, making a radiating form, or by pushing the blocks out, making an encircling form.

the same law of movement as that of the forms derived from the square, namely, from *without in* or from *within out*. The child may if he chooses begin by pushing the middle block of each of the three sides of the triangle in half an inch toward the center, next he may push the two blocks, that touch the middle block, in one-half inch toward the center, and end this figure by pushing the three middle blocks another half-inch further in. This moving of the blocks, one-half inch at a time so that the line of connection is not lost, may be continued until the three cubes that originally stood in the middle of the three edges of the large triangle, now touch, enclosing a small one-inch triangle, and the remaining blocks form a zig zag radiating line to what was formerly the corner of the large triangle, each touching the block next it by half its edge (see Fig. 42).

Of course the reverse process can take place, and the middle cube of each side of the large triangle can be pushed *out*, the others following until an



No. 42. Showing the same form as No. 41, after five of the blocks on each side of the triangle have been moved toward the center.

*encircling* form, almost round in shape, is obtained, and we see now more clearly than ever before, that all “radiating forms” are forms whose strength lies at the center and limiting or encircling forms are those that have little connection with the center and are stronger outwardly. One cannot help feeling the spiritual analogy that such an exercise brings. Who are the strong, fine characters that radiate spiritual power, so to speak? Are they not the people who are strong from an inner life? Who are the depressing limiting characters, those who make us feel helpless and despondent? Are they not that class of people who live in external ceremonies and appearances, who place etiquette before courtesy? who observe the dress of a new acquaintance before his or her expression of face? who accord social rank to money rather than to character? And who, therefore, curtail not only their own lives but all the life within their circle of influence!

But to return to our triangular series of forms of beauty; take away one cube, leaving the sides of

the triangle eight inches long instead of nine, and we can begin a new series of rhythmic combinations. The three cubes thus liberated can touch at the center of the triangle by their corners, by their edges, by corner to edge, making three different centers to begin with; then each can move outward toward the edge of the triangle, touch it by their own edge or by a corner, then move to the three corners of the triangle which again can be touched by the edge or side of the cube and then by a corner of each. Next the three cubes can be placed outside of the triangle, touch its sides with one of their edges again by corner. Then they can be placed at the outside corners of the triangle touching by edge and by corner. Here we have fifteen forms, all obeying the law of within and without, touching by edge and by corner. The child is learning not only that a variety of forms can come under one law, but he is being trained to conscious observance of position and relation in other things. The little game of "Puss wants a corner" can be played at such a time, and the middle of the sides of the room can be goals as well as the corners. Tablets, sticks, seeds may be laid in "corner" patterns or "side" patterns on the checked surface of the table. If now, the three cubes be placed again in the sides of the triangles and three cubes that are divided into two triangular prisms be taken instead, another and still more varied series of forms may be made, by using the half cubes separately, first within the triangle touch-

ing by longest edge, and then by square corner, or if the child chooses by one shorter edge or one sharp corner, though these forms are less pleasing than the better balanced ones. It has been found by actual counting that three hundred forms can be made with these six half blocks and the triangle, all clearly defined and easily described. Of course it would be nonsense as well as a waste of time to have the child go through all of these various moves, but he can be given the limiting law, namely to keep the general form the same throughout the series, to work from within out or without in, and to touch by corners or edges, and then be allowed to try as many as he may choose and in this way, as has been said, he learns to look for unity under variety, to realize freedom of choice while under the law.

If now four fourths of a cube be taken instead of two halves, we have a still larger variety. More than twice as many forms can be made. If again two cubes be taken from each side, leaving seven instead of eight cubes on each side of the triangle, many more forms can be made. Again three cubes may be taken from each side instead of two, or two whole cubes and two halves, and so on, four cubes may be freed, five, six and even seven, leaving the central figure a triangle of two inches. We speak at length on this subject, because there has been much confusion caused by Goldammer's inserting various fantastic forms of beauty into the plates left by Froebel, and the result has been a seeming chaos

of meaningless forms, whereas all of Froebel's forms are logically developed under the one law. Hexagonal or octagonal centers may be the starting point if desired.

One very pretty wheel like form, including both the radiating and encircling idea, is made by placing one whole cube in the center, then place four quarter cubes at the four corners, touching by their square corners, and four more quarter cubes, touching the middle of the edge of the central cube, by their square corners, a small octagon is then formed. Eight whole cubes can now be placed so as to touch the eight longest edges of the quarter cubes or triangular prisms, and we have a star form. Back of each of these last placed cubes may be placed eight other cubes touching by the edge; between the rays or spokes thus made, may be placed eight half cubes, or triangular prisms with their square corners toward the center. We have now a large octagon. The four remaining cubes may be placed back of the four cubes that are at the back and front, the right and left, and an exceedingly pleasing form is made, with the idea of inner and outer, radiating and encircling still distinctly perceptible. All sorts of plays and games will easily arise from such exercises. Froebel, however, warns the kindergartner from bewildering the imagination of her children by too much moving. It is better to help the young workers to understand the few simple laws of harmonious designing and then to leave them to work

out a number of designs according to their own ideas; afterwards let them select one, describe it exactly in a few simple words, and make it permanent by means of parquetry water colors, colored crayons, or in any way that time and materials may suggest.

These exercises are easily carried over into the arrangement of leaves, shells, etc., and the childish heart opens, to ever increasing power of observation and appreciation of form and proportion, until he learns to love the great world of designing, of sculpture and of pictures, while his interest expands with the keen delight of comprehending the "thought plan" of the artist, and his spirit is quickened by creative power awakening within; surest evidence of Man's sonship to God.

#### ANALYSIS OF THE GIFT.

1. Description of the gift.
2. Relation to previous gift.
3. Salient characteristics.
4. Forms illustrated.
5. Relation to the child.

## CHAPTER VI.

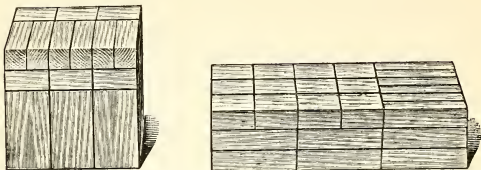
### THE SIXTH GIFT.

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(The Sixth Gift is a three-inch wooden cube divided into twenty-seven oblong prisms of the same dimensions as those of the Fourth Gift; three of these are bisected longitudinally, and six are bisected transversely; making by the longitudinal division six two-inch long square prisms or columns, and by the transverse division twelve one-half inch high square prisms or plinths.)

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The above is about as exact a description as is usually given of the Sixth Gift, and one feels instantly the break in the smooth rhythmic flow of both the thought and the words used heretofore in the description of the Gifts (see Fig. 43). The First and Second Gifts are wholes, whose length, breadth and thickness are equal though undivided. The Third Gift gives us the first division of once according to its length, once according to its breadth and once according to its thickness. The Fourth Gift gives us a variation in the axial divisions by bisecting the cube once according to its length, and three times according to its breadth, leaving out any divisions as to its dimensions of thickness (thus early hinting at the embodied surface that is slowly approaching by means of later Gifts). In the Fifth Gift we return to the threefold axial division, taking a larger cube of three inches and repeating the cut in each dimension. When, however, we come to the Sixth Gift, as it is now presented to the child, a con-



No. 43. Showing the Sixth Gift as a cube in which the cuts are irregular, and again the Sixth Gift as an oblong prism in which the cuts are regular, i. e.: divided twice according to its length, breadth and thickness.

fusion as to axial planes at once arises. In no way can the twenty-seven oblong bricks be built into a cube so as to allow the child to divide it according to its length, breadth and thickness, into anything like even proportions. All Kindergartners realize this, and all children who have been trained to begin their building by first making the axial divisions of their blocks, feel the confusion. Usually the direction is given, "Pile all your long narrow blocks (or columns) together, then pile all your short square blocks (or plinths) together.\* Thus the sense of a whole and its part is destroyed, and one of the strongest educational features of the Froebelian Building Gifts is done away with.

**NEW WAY OF  
PRESENTING THE  
SIXTH GIFT.**

We would, therefore, suggest that the blocks be built into an oblong prism by laying nine of the individual bricks on the table so as to make a form six inches long, three inches wide and one-half inch thick; on top of this place the

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\*Some Kindergartners adhere to the geometric terms and some use the architectural terms in building with this Gift.



remaining undivided bricks so as to make a form six inches long, three inches wide and one inch thick; on top of this place the divided bricks, with those longitudinally divided at one end, and those transversely divided covering the remaining surface (see Fig. 43). This makes an oblong six inches long, three inches wide and one and one-half inches high; then we have a form which exactly corresponds with the brick of the Fourth Gift, multiplied by three, i e., its length is twice its breadth, though three times that of the Fourth Gift block; its breadth is twice its thickness, though again three times that of the Fourth Gift block, and its thickness also maintains the same ratio, by being three times the thickness of the Fourth Gift block; in other words, we have retained the proportion of a length twice the breadth, a breadth twice the thickness, merely multiplying this proportion by three. Thus, not only is the parallelopiped or oblong form, which was created by the Fourth Gifts presented, but its possibilities are elaborated in the same manner in which the possibilities of the cube are elaborated by the Fifth Gift, viz.: by the repeated division of the form according to its axial planes. In each of these divisions it will be seen that the shape of an oblong prism is preserved, just as that of the cube was kept in the twofold axial division of the Fifth Gift cube.

**LOGICAL DIVISION  
OF THE GIFT.**

If we divide the Sixth Gift, thus arranged, twice, according to its length, we have three oblong prisms six inches long, one inch wide and one and one-half inches thick. These may, again, be twice divided and recombined into an oblong prism eighteen inches long, one inch wide and one-half inch thick, which emphasizes linear direction. If, however, we divide the whole twice, according to its thickness, we have three oblong prisms (see Fig. 44), which are six inches long, three inches wide



No. 44. Showing the Sixth Gift as divided: (a) according to its length, (b) according to its breadth and (c) according to its thickness; in each case into three equal parts.

and one-half an inch thick. These may again be subdivided and recombined into an oblong nine inches long, three inches wide and one-half an inch thick, which emphasizes surface area. Or, again, if we divide the whole twice, according to its breadth, we have three oblong prisms, three inches long, two inches wide and one and a half inches thick; these may again be subdivided according to their breadth or their thickness, making in each case three oblong prisms. The first emphasizes surface, the second the line. In this we see the foreshadowing of the tablets, the surface gift, and of the sticks, the embodied line. Thus, it will be seen that the form

unfolds logically, easily and symmetrically by threes into oblong prisms of various dimension. This not only makes it parallel with the Fifth Gift by the twofold axial division in each direction, and the constantly repeated use of the number three, but it also shows clearly and distinctly why Froebel placed it as the second form in his second series of building gifts, i. e., the oblong or brick series,\* just as he placed the Fifth Gift as the second form in the first series, i. e., the cubical series. The latter re-emphasizes the cube made by the division of the Third Gift, and the former, the Sixth Gift, re-emphasizes the oblong prisms made by the division of the Fourth Gift.

**SIGNIFICANCE OF  
THE SUBDIVISIONS  
OF THE SIXTH GIFT.**

The two new shaped blocks which are made by the subdivision of this Gift, viz.: the long, narrow, square prism or column, and the short, flat, square prism or plinth, represent each in its own way the embodiment of the two directions, viz.: length-wise and cross-wise. It is plain in this Gift, that the child becomes famil-

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\*We cannot forbear quoting from Dr. Snider's "Psychology of the Gifts" the following suggestive and interesting passage:

The brick has a varying degree of stability as an offset to its versatility; the cube has one and the same degree of stability as an offset to its stolidity. Each has its drawbacks along with its advantages. Place the bricks erect in a row, and each seems to stand up like a man; but a little blow from the outside upsets it, and if it falls against its neighbor, the whole row goes down. You cannot do this with a cube or row of cubes. It presents the same stolid stoical face to the blow of fate; though you tumble it over, you cannot upset it, as it presents to you exactly the same look without the least twitch or distortion of feature, changeless as the face of a Sphinx.

I do not think I like very well that play of the bricks in which the whole row is made to fall by some external impact, though undoubtedly the children are fond of it, and it seems to have the approval of Froebel. But it has too strong a flavor of external determination, of unfreedom, in fine

lar with the two dimensions, length and breadth, which play so large a part in the world of form. In nature, the second large division of crystals are those having one axial division longer than the other two, with all three at right angles to each other; in other words, this oblong prismatic form; again it is the height of a tree, the spreading out of its branches that we notice more than its thickness. In the human body the legs and arms emphasize, also, this length-wise and cross-wise. It is the beginning of all creative structures made by man. The builder in laying the foundation of a house measures its length and breadth. The height of a room is also determined by its length and breadth. The artist first measures his canvas by length and breadth before grouping his picture. The sculptor adds majesty to the figure he is chiseling by the height that he gives to it, and dignity by the breadth of its shoulders, and the emotional force by the extended arms. In architecture it plays a larger part still. The Greeks were the first people to give poise and balance to their buildings by emphasizing the upright line of the rows of columns and the cross-wise lines by their stylabus and entablature. The soar-

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of fatalism, which is certainly not to become the belief of the child, at least not in a free land. Not too much of that play, my dear Kindergarten. Rather that other play of equilibrium which cultivates the well balanced soul within, erecting a lofty monument of eight bricks, end on end, without its toppling. A little feat of doing it is, which, however, can be done with perfect safety by keeping the center of gravity always inside the base.

It is true that the historic parallel already hinted holds good. The Greek world, with all its genius and versatility, was at last struck by the blow of fate, coming from an outer might, which hurled it as a nation to the ground, never to rise again in its ancient glory. Well, that blow of fate struck Egypt, too, which stood the pummeling of thousands of years, it may be said, before the cube was broken to pieces. But the Pyramids and the Sphinx are there yet.

ing aspiration in the souls of the old builders of the Gothic cathedrals showed itself by the preponderance of vertical lines upon the facade and spires of the cathedrals. One of the most striking illustrations of the power of expression which lies in the right use of cross-wise, length-wise, was seen in the World's Fair at Chicago. Two buildings stood side by side, one containing the mining exhibits and the other those of electricity. The buildings were exactly the same length, height and breadth, but on the mining building the long horizontal lines were emphasized, giving it a low, solid appearance, corresponding admirably to the nature of its contents; whereas, the surface of the building devoted to electricity emphasized the vertical line, giving the building the appearance of a light, airy structure, corresponding with equal fitness to its contents. This, of course, is the height of art. But Froebel would have the child begin his observation of the world about him, and his own childish creations, by observing that the form of an object is largely due to the relation between its cross-wise and length-wise lines of structure. In the little song of "The Target" he would have the Mother play with her baby that they were constructing an imaginary target for his amusement. On the palm of the child's extended hand she draws with her fore finger a length-wise line and crosses this at the middle by a cross-wise line, singing some such words as these:

This piece of wood I lengthwise lay,  
This piece across the other way,

and so on, until the little "Target Song" helps to make plain to the baby mind the two directions of length-wise, cross-wise. Another little game is to play that his arm is a log of wood and her hand a saw which saws cross-wise of the wood. Of course such plays as these are supposed to accompany real experiences or at least observations of the objects playfully imagined here. The American child who is less familiar with the target than the German child, will either have to have one made in his presence or a kite or some similar object where the length-wise, cross-wise structure could easily be seen. Later on in his work with the gift and occupations we have many games or exercises in which length-wise and cross-wise are brought out. As before said, they are the essence, as it were, or rather the fundamental elements of all form. Here in the Sixth Gift they are not only embodied in the column and plinth, but the variation or contrast between length and breadth is emphasized, in each block, in order that the child may rise into more accurate representations of architecture; as the Sixth Gift is particularly the Architectural Gift of the entire series.

The different variations of parts of a building which can be made by the three-sized blocks again illustrates how admirably this kind of material advances in its possibilities as the child grows in his accuracy of observation and desire for more complete expression of the forms he is making.

This is not a trivial matter, but when rightly considered rises into the moral world. As the mind grows clearer its moral responsibility should increase with the increasing insight, so too, as the powers of observation grow in accuracy, should increased exactness of expression be demanded. The crude work which can be accepted from unskilled hands becomes an immorality if accepted from skilled hands, as slovenliness in work is demoralizing, though not always so considered. We should each and all be held constantly to doing our best, and it is well if the child's material by its increasing possibilities adds incentive for better work. Therefore the Sixth Gift, with its strong emphasis upon length and breadth, quickens the child's observation of proportion and beauty.

**THREE WAYS  
OF USING  
THE GIFT.**

It is usually given as are all the other gifts in three distinct ways, viz.: in reproducing forms of life or use, or expressing those created by his imagination. This is the best and most evident purpose, but there are many geometric and arithmetic possibilities within it, and forms of beauty or symmetry can also be made from it. These last two will be spoken of later on. Let us return now to the Forms of Life. As before said, it is distinctly the Architectural Gift. In the Fourth Gift we enclosed space with walls. This is the beginning of Architecture. Here the advance is made by the possibility of floors and roofs being added. Windows

also can easily be made by leaving out half of the transversely divided blocks. Doors with portals and porticos are easily constructed; colonnades, peristyles and entrances to temples suggest themselves by the mere handling of the material. As the long bricks hint at foundations, broad low steps, so the short, square prisms suggest plinths and capitals, and the long square prisms, columns, and the triangular entablature is easily suggested by placing one brick, with its flat face touching in the middle two other bricks that have been laid upon the top of the columns.

The pillar and the plinth, with which the child becomes familiar in this gift, are in reality, as before said, the structural elements of all buildings, the pillar representing the supporter, and the plinth the supported, thus showing how closely architecture is related to human society, oftentimes suggesting curious analogies, for is it not the product of the human mind?

Dr. Snider, in his *Psychology of the Gifts*, suggests that for older children the Sixth Gift be made the size of one cubic foot, and that a third subdivision be added to the two already made, viz.: that the pillar or plinth be subdivided into small cubes, thus letting the child feel the return to the original form of the first building gift. We quote the closing paragraph of his argument: "In this way we catch a view of the entire sweep of the present series in its inner, psychological process. The first stage

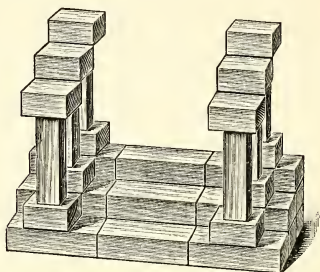


is the Third Gift, which is simple derivation by means of division, which, however, produces no difference of form. The second stage introduces difference of form in a number of ways, which are seen in the Fourth and Fifth Gifts, with their quadrangular and triangular shapes. Thus, difference passes from size into form. The third step is the Sixth Gift, which, producing the plinth and the pillar (as vertical), and the cross-beam (as horizontal), returns into its origin in the final division, returns into the beginning of the series, which is the cube”.

**LIFE FORMS.** In all such plays as these, the arrangement of the blocks, as we suggested at the opening of the chapter, makes the work much easier and simpler for the child, as for example :

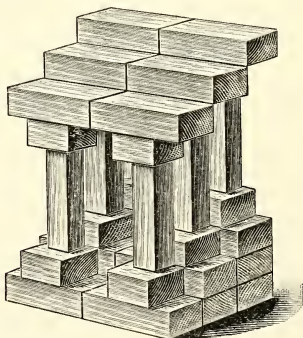
First. Let the gift show the whole as an oblong prism,  $1\frac{1}{2} \times 3 \times 6$ , as has already been described. (Experience has taught that it is more convenient for building if the long square prisms are placed at the right end of the top layer.) Place this oblong prism in such a position that the oblong faces of the bricks and long square prism will extend from left to right. Remove top layer of blocks; place the three oblong prisms, which are now in front, on the three oblong prisms at the back, thus making three long steps, and place on each of these steps one-half inch from their ends, a short square prism, and on each of these prisms stand a long square prism; on each of

these long square prisms balance a short square prism, placing it on its square face. By means of



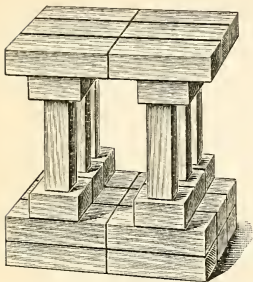
No. 45. Showing the first move in a sequence of Greek architecture, representing steps with an ascending row of columns.

these few and simple moves we see a row of steps with ascending pillars (see Fig. 45).



No. 46. Showing the second move in the sequence of Greek architecture, representing steps with ascending pillars and arched over.

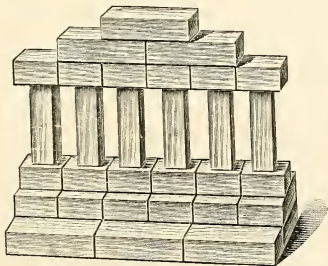
Second. Remove the six oblong prisms which represent the middle portion of the steps, and push the remaining portions together; with the six blocks just removed make three oblong prisms, each four inches long, and place the same on top of the form, so as to represent a roof supported by pillars.



No. 47. Showing the fourth move in the sequence of Greek architecture, representing a covered porch and steps with ascending row of columns.

This may be called ascending steps with pillars and roof (see Fig. 46).

Third. Transfer the blocks which now form the back row at the bottom, to the front, and place on top of it the bottom step with its pillar and roof, and lo!



No. 48. Showing the fourth move in the sequence of Greek architecture, representing a colonnade as a facade of a temple with steps in front, and with an entablature suggesting the triangular pediment.

the steps have disappeared, and in their stead is a small Greek temple (see Fig. 47).

Fourth. Remove the blocks which represent the roof, or architrave of the temple, and divide the remaining forms in half, turn the inside portion of these to the back and the temple changes into a beautiful facade which grows still more beautiful, when, with the idle blocks, a long broad step is placed in front of the whole building, and a pediment is placed on top of the building, as is shown in (Fig. 48).

Aside from the architectural forms already indicated there are many charming bits of furniture resembling "Eastlake" furniture, in simplicity of detail and suggestion of strength and durability. Any Mother or Kindergartner, who has reached this point in her kindergarten training, can devise these objects for herself without further suggestions from us. One or two pieces of furniture, such as the davenport, the church organ, the book case or the kitchen closet given in the Kraus-Boelte Kindergarten Guide Book, would be enough to start the imagination of the child into all sorts of variations of his own.

#### **HAND-WORK FOR PRIMARY GRADES.**

By the time such work as this with the Sixth Gift has been reached, the child is old enough to describe the proportion of the object made, and to reproduce the same with some more durable material, such as the smooth but fibrous Japanese manilla paper, sold by all dealers in kindergarten sup-

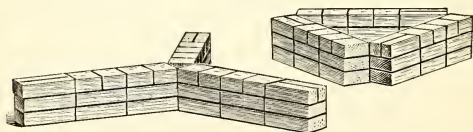
plies. Even the ordinary stiff wrapping paper, when rightly used, will serve the purpose. In this way the so-called "constructive work" of the Primary and Second grades can be made exact and mathematical, and the child be thoroughly conscious of what he wishes to construct before beginning the permanent form of his work. These advance gifts serve in this manner as a kind of "working plan" for Manual training of the lower grades. It is because the *elements* of the kindergarten gifts have not been sufficiently emphasized, that they have not been used in the grades beyond the kindergarten. The two or three schools in Germany with which we are cognizant use the Fifth and Sixth Gifts with children up to the ninth year, and in ways similar to the one just suggested, viz.: building a temporary form with the gifts, studying the proportions of the parts of this temporary form, changing the same when not in good proportion, and finally using the satisfactory form as a model from which to construct a more permanent form.

It should always be remembered that the kindergarten gifts were not created for the manufacture of toys, but rather to lead the child into a consciousness of evolution, and of the laws of construction. The objects made by them are incidental illustrations of these laws. Although it is perfectly right and legitimate that play should arise from making the object, and play should surround and accompany its use, still the teacher must always re-

member that through all this play she is leading the child's mind to see, to know, and to use the universal laws of construction. In addition to the life forms already spoken of, walls, fences, platforms and sidewalks of various dimensions may be called for. Where the large six gifts are used and the children work together in groups, doll's houses may be made, sidewalks laid across the room, fences built around gardens in the sand yard, and various other exercises carried on in which the gradual approach to the surface is indicated.

Forms of Knowledge and Forms of Beauty can be derived from these last mentioned surface forms, or they can be derived from the axial divisions of the gift.

The Forms of Beauty which can be made by this gift are more limited than those which can be made by the Fifth Gift, where the slanting line and triangular surface give added variety, but the same thought of logical development and of unfolding from within out, or enfolding from without in, should be observed (see Fig. 49). *It will readily be seen that these Beauty Forms cannot be derived from*



No. 49. Showing the Sixth Gift unfolding forms of two figures which are the starting points of radiating and encircling sequences of "Forms of Beauty."

*the square (as in the Fifth Gift) without leaving over a remainder of two blocks. The nature of the Gift, however, lends itself to the oblong forms, and thus we begin two-sided instead of four-sided symmetrical figures.* The increase of the linear dimension necessitates our throwing in a word of caution concerning these "Forms of Beauty", lest for the sake of originality they should be *stretched out* until pleasing proportions are lost. A little practice will bring forth any number of forms. We suggest to the adult, who may be lacking in ingenuity, a number of attractive forms made from the triangle and hexagon which have been worked out by Mme. Kraus-Boelte in the above mentioned guide book.

**FORMS OF KNOWLEDGE.** The geometric forms made by this gift are extremely limited. Problems, however, may be given the child in finding out how many different sized squares and oblongs he can produce. Almost all the geometric surfaces may be enclosed by the Sixth Gift; as the sticks are better for outlining of surfaces, we do not recommend them in this chapter. Various arithmetical combinations that can be made by two and three and their multiples, are, of course, clearly seen. Fractions or wholes and their halves naturally suggest themselves from the divided bricks, and if the large Sixth Gifts are subdivided into quarters again, fourths and even eighths can easily be seen.

**ALL ART BASED  
ON GEOMETRY.**

It is a well known fact that all true art is based upon geometric proportion. The most important period for developing a love for the beautiful is in the early school life when the divine impulse of creative activity is strongest. We cannot over-estimate the value to the child of having tools and play-things which bring to him, even in his play, right proportions and balance of parts. It is true that Fra Angelico, with his soul purified and exalted by religious life, painted angels and madonnas that, notwithstanding their faulty anatomy, cause the hearts of all beholders to bow in reverence; but it is also true that Michael Angelo, with his powerful and unerring touch, created greater forms and combined stronger lines which show the skill of a mighty master in his gigantic task of reforming a world; it must be here conceded that Raphael's perfect knowledge of anatomy had much to do with the beauty and grace of his wonderful pictures. Genius may be a God-given special endowment, but genius rises to its highest only when it has perfect control of means of expression, so that its ideals shine through the materials used until we forget the technique and forget the material used, and think only of the God-sent message to mankind. The greatest art eras of Greece and Rome were not reached until the artisans, as well as the artists, were imbued with the true art spirit; that is, with an almost religious love of beauty. All travelers who visit Florence are stirred to the in-



most depths of their hearts by the fact that even in the days of her degeneracy she shows that in her period of glory, the humblest worker in wood, stone or metal had an inborn love of beauty. Such great art as the Florentine art could never have come into existence under any other conditions.

**BEAUTY AND PROPORTION ARE TO THE SOUL WHAT SUNSHINE AND FRESH AIR ARE TO THE BODY.**

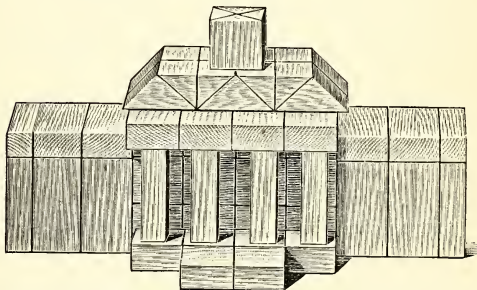
Our own strong and rich America will not rise to the greatness of transforming her material wealth into forms of beauty that shall make eternal her higher life, until her citizens have learned from childhood, to love harmony and symmetry of proportion, together with richness and softness of color, as they already love self-activity and independence. We once more call attention to the fact that, in the same way in which the race learned to love symmetry and proportion of conduct, the child is beginning to learn that wonderful transformation of the meaning of the words from their merely physical significance to a spiritual content. We speak of the well balanced character, of culture resulting in moderation and proportion. That the race long ago felt this transferred meaning of the word balance, is shown by the statue of justice which has been represented from time immemorial as a majestic figure of a woman *balancing* a pair of scales in her uplifted hand—fit symbol of that great law of compensation which inevitably metes out to each soul the fate that

its own deeds have created. This moral insight is as old as recorded history, for in the opening passage of Homer's *Odyssey* we read:

“Why do these mortals blame the gods  
For woes, which they by their own folly  
Brought upon themselves.”

#### POINTS OF ANALYSIS.

1. Description of the gifts.
2. Relation to previous gift.
3. Salient characteristics.
4. Forms illustrated.
5. Relation to the child.



No. 50. Showing Fifth and Sixth Gifts combined, making dwelling house with two wings and colonial porch.

## CHAPTER VII.

DIVIDED CYLINDER.

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(The Divided Cylinder is a cylinder two inches high and two inches wide. It is divided by its axial planes once from front to back and once from right to left, the two cuts being at right angles to each other. It is again divided once parallel to its circular faces into two short cylinders, each being one inch high.)

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We come now to the third series of the Building Gifts, viz.: the Cylindrical series. The beginning of this series was indicated by Froebel in his "Complete Statement of the Means of Employment of the Kindergarten". See Education by Development, Appleton edition. It, however, as a gift,\* was not developed until after Dr. Snider in his "Psychology of the Play-Gifts" called the kindergartners' attention to its importance, showing them that if the work of the kindergarten is to continue and to grow in efficiency, it must neither remain stationary and refuse to allow the changing of one jot or of one tittle of its details as marked out by Froebel, nor must it become revolutionary, and discard the instrumentalities selected by so great a genius. If this work is to retain the vital life which has inspired so many thousand educators, it should unfold and develop along psychological lines, which would not, and

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\*In "The Kindergarten Guide," Vol. II., Madame Kraus Boelte suggests a number of ways in which the divided sphere and the divided cylinder may be used in the Kindergarten as an occupation.

could not differ from the principles underlying the rest of the kindergarten system. Goldammer—Froebel's successor in the leadership of the kindergarten work in Germany—felt so strongly the necessity of the curve being presented to the child in concrete form, that he invented a new gift which he called the "Fifth Gift B". This gift contained rounded pillars, but, as it in no way showed the clear-cut axial division, and in no way proceeded from a type form, nor showed any organic or genetic connection of the parts with the whole, it failed.

It is this simple, systematic, rational division of the Frobelian gifts together with relation of their parts to the whole that makes them educational in the deepest sense of the word; therefore, Goldammer's gift has been rejected on good grounds.

We can give the reasons for the new gifts in no clearer or more forceful way than by quoting from Dr. Snider's book previously referred to, page 172: "The main reason why there should be a curvilinear series of gifts in correspondence with the rectilinear series, may be here touched upon.

"(a) It is necessary for completeness of derivation. The sphere and the cylinder though genetic in themselves, and belonging to the originative (Second) Gift, have no representative among the Building Gifts. Here lies an offense against the very important maxim of Froebel himself, that all the material is to be used in construction and not left lying around in a loose way. As in a single

gift so in the totality of gifts, no fragment should be left unutilized. Moreover, if one piece be barren, say the cylinder, there is a denial of the very principle of genetic development. The child himself will feel the gap and show a vague longing for completeness—sometimes he will express it in a naive word.

“(b) It is necessary for symmetry in the total system of gifts. When we come to the surface and lines in abstract magnitude, we shall find curvilinear shapes in the tablets and in the rings; whence did they originate? We may refer them back to the cylinder, but the intervening stage has dropped out. This violates the symmetry of the Gifts.

“(c) It is necessary on artistic grounds, as we shall see later. Art must have the curvilinear; Architecture, the most rectilinear of all the Fine Arts, cannot do without the arch in any complete development of itself, and the arch is curvilinear.

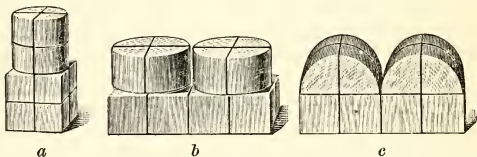
“(d) It is necessary to ethical proportion in the human soul, as we have already set forth. There can be an excess of the rectilinear in the conduct of life, though it certainly forms an indispensable part thereof.

“(e) It is necessary for scientific completeness, since geometry demands curves as well as straight lines, and certainly nature has both. Geometry, in facts, starts with the rectilinear, and moves into the curvilinear by division of itself until it quite reaches the point. That movement we may follow in the unfolding of these gifts.

“(f) But the main thing above all other things is, that the curvilinear element is necessary for the educative completeness of the training of the child. This conclusion follows from the statement just made. Genetically incomplete, artistically incomplete, morally incomplete, scientifically incomplete. Are any more reasons needed for this new curvilinear gift (or gifts).”

This strong call for a solid gift with curved lines brought forth, as has already been stated, a number of inventions, from different parts of the country. We have selected those which best illustrate the fundamental principles found in the preceding Gifts.

In summing up the Kindergarten Gifts, Froebel shows clearly the origin, not only of the straight line and flat surfaces, but of curved lines and rounded



No. 51. Showing the Third Gift and the divided cylinder combined, making the first three moves in a sequence of life forms, viz: *a*—Water tank. *b*—Two water tanks. *c*—Double house.

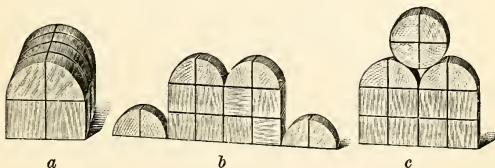
surfaces, therefore strictly speaking the Third series of the Building Gifts, may be said to begin with the sphere, divided according to its length, breadth and thickness, into eight “spherical triangles”.\*

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\*Froebel named these parts “spherical triangles.”

This Gift thus divided has been used in some of our kindergarten and training classes, but thus far it has been found to be limited in possibility of forms even when combined with the cubes of the Third Gift. Esquimaux huts and a few similar buildings may, of course, be made from the divided sphere alone. A few pretty domes have been added to buildings made by group-work with the Third Gift, and here and there half domes suggesting the arch. But this gift has been of little practical value so far.

When, however, the two-inch cylinder of the Second Gift is divided according to its axial planes, we see at once the increased possibilities given to the building instinct of the child, especially when combined with a rectilinear gift.



No. 52. Showing the Third Gift and divided cylinder in a second sequence of life forms, viz: *a*—Car house. *b*—Two large round houses. *c*—Station with clock.

We give here a few of the forms that have been made by such combinations (see Fig. 51*a*), which was called a water-tank. This may suggest a talk about the value of water; the various ways of saving it; the travel of the rain drops from the great ocean over the broad land until the time and place comes

for them to fall gently upon the earth to cleanse and refresh vegetation. If the child's home is in the country or small town, barrels for catching rain-water may be examined, the making of cisterns talked over, etc.

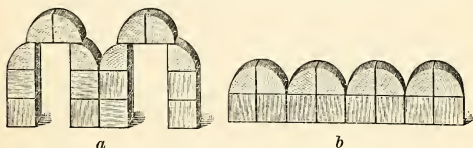
If his surroundings are those of the city, possibly a visit to the waterworks may be made. A water tank and engine may be pointed out to him or his attention may be called to some other arrangement for supplying man's needs for water. If the children have traveled, or if they have well developed and vigorous imaginations, the story of crossing the great American Desert may be pictured and the value of the great water tanks of the railway stations on a desert may be brought in a simple fashion to the child. In some such manner as just suggested, the imaginary water tank may become a real means of education.

If now we arrange the blocks as in Fig. 51*b*, we have a double water tank and the children can learn that often the water must be turned into one tank while the other is being cleaned or mended. If the divided cylinder is re-arranged as in Fig. 51*c*, we have a double house, and the story of the neighborly life of two families may be interwoven into the play, and the many exchanges of kindnesses and courtesies may be brought forth. If the blocks are again re-arranged as in Fig. 52*a*, we have what has been called a railway roundhouse with sheds; it could, of course, be a green-house with wings, and



it is well always, if possible, to draw the name from the children, thus avoiding the danger of giving them names of form which they do not comprehend. To some children a railway roundhouse is a familiar object, whereas other groups of children have no idea of the appearance, nor of the use of such a building.

The blocks may next be changed so as to make Fig. 52*c*; this has been called a railway station with a clock. Much fun may be created by imaginary



No. 53. Showing two last moves of sequence begun in No. 53, viz:  
*a*—Two gateways to trains. *e*—Door to railway station.

families represented by sticks, or with the fingers of the child, (or with unimaginative children, dolls cut out of paper may be used). The play may represent these families as getting ready for a railway journey and watching the railway clock so as to be on time for the leaving of the train. In fact almost any kind of a play in which the clock takes part can be here introduced.\*

The form illustrated by Fig. 52*c* can easily be changed into Fig. 53*a*, and if the thought of the rail-

\*We recommend the reading of Jean Marcé's Fairy Tale of the Enchanted Clock as a clever story in which is brought out the connection between punctuality and the child's conscience whose warning voice makes the owner of the little clock learn gradually to do each duty in its appointed time.

road and its buildings has been kept in mind this form may be called Gateways to Trains; it could, however, be an entrance to a park or be called by some other names suggested by its shape. If the blocks are now closed completely together as is shown in Fig. 53*b*, we have a large depot, or perchance it may be a town hall.

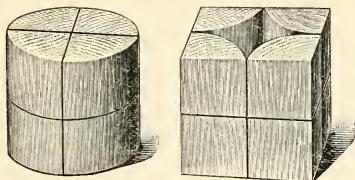
Many other similar illustrations might be given, but these are perhaps enough to show how the divided cylinder adds to the possibilities of the cubical building gifts. This same gift may be used to give the rounded or the Romanesque effect to buildings made by the Fifth Gift, whereas the Fifth Gift when used alone as a building Gift is distinctly Gothic. As before stated the illustrations given in this book are intended merely as hints and suggestions of the possibilities of the Gifts. The best work is always done when the law of the Gift is respected and at the same time, the forms are given with which children are familiar from having seen such building forms in reality or in pictures, or having conjured mental images of buildings described in stories.\*

It is needless to take the time of the reader to speak of the many forms of beauty or of symmetry

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\*A Kindergarten once told the story of the "Genii and the Bottle" as given in "Two Children of the Foothills." The children between five and six years of age who formed one group decided that they would each draw one of the houses given by the Genii to the poor fisherman; and each faithfully reproduced, in so far as childish development would permit, the buildings selected by him. Several of the children afterwards brought in reproductions of the hut, the manor house, the castle and the palace, made in pasteboard, clay or wood, thus showing that children get definite ideas of forms from stories.

which may be made by the addition of these eight partly curved blocks. Of course, in forms of knowledge it is limited to the form of the cylinder



No. 54. Showing divided cylinder and the same figure turned inside out, with its inside center diametrical lines and axial planes changed into the corner edges and faces of the cube.

and to the form of the cube, which is made by turning the cylinder inside out.\* (See Fig. 54.)

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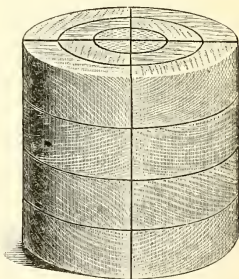
\*These parts of the divided cylinder are called by Froebel columnar bodies. "Education by Development," page 343, Appleton Edition.

## CHAPTER VIII.

**CURVILINEAR GIFT.**

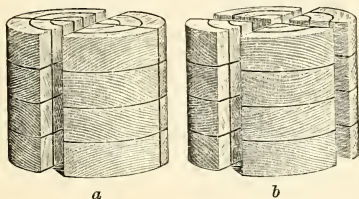
(The Curvilinear Gift is a cylinder three inches high and three inches wide; it is divided by its axial planes once from front to back and once from right to left, the two cuts being at right angles to each other. It is again divided three times, parallel to its circular faces into four equal disks or circular tablets; each of these disks or circular tablets is concentrically divided so as to produce a ring three inches in diameter and a ring two inches in diameter and a circular tablet one inch in diameter, thus making sixteen quarter rings three inches in diameter and sixteen quarter rings two inches in diameter, and sixteen quarter circles one inch in diameter.)

In the first series of the Building Gifts, namely, the cubical series, we find that the Fifth Gift repeats the lines, surfaces and solids brought out by the Third Gift; again, in the second series, namely the bricks, the Sixth Gift, repeats and emphasizes the two directions brought out by the bricks of the Fourth Gift; so in this, the third, the Curvilinear series, we must again have a repetition of the element brought out by the divided cylinder, namely, the curve of the circle, therefore, this Gift



No. 55. Showing Curvilinear Gift as a whole.

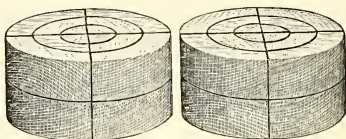
must have concentric circles in order that by the repetition of the circular lines and surfaces and their parts, the child may become familiar with them and their relation to the whole; but these halves and quarter circles must be logically derived, not thrust upon the child. Not only must form be seen to evolve, but each new experience of the child must be rooted in some past experience, if the experience is to be fundamentally educational. It is true that a thou-



No. 56. Showing Curvilinear Gift divided vertically: (a) into halves, and (b) into quarters.

sand and one haphazard sensations will thrust themselves upon the young child. If, however, we have trained his mind to work systematically and logically, he either fits these accidental sensations into the categories in which they belong, or drops them out of his consciousness; we must, therefore, expect the next new cylindrical Gifts to not only repeat the curved line of a circle, but to divide that curved line into half and quarter rings, by the axial planes passing through the entire cylinder. (See Figs. 56, 57 and 58.) The thickness in this case being uniform as in the case of the Sixth Gift.

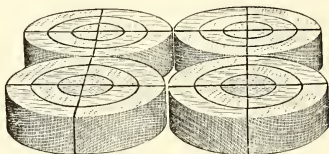
It was for these reasons that the so-called Curvilinear Gift described above, has been selected as the Second Gift in the series of Curvilinear Gifts. (See Fig. 56.) It will readily be seen that when this Gift is turned inside out or its "inner is outered" that it makes a



No. 57. Showing Curvilinear Gift divided horizontally into halves.

three-inch cube, thus connecting it not only with the cylinder but also with the cubical series.

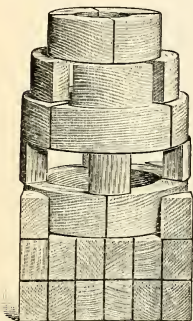
This Gift lends itself best to the construction of tunnels, towers, observatories, railway stations, band-stands and similar structures, where the curved line preponderates, yet these are more pleasing when part of the Gift has been placed so that its



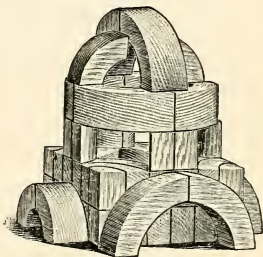
No. 58. Showing Curvilinear Gift divided horizontally into quarters.

straight edges appear as the foundation of the form. (See Fig. 59), where we see an added strength is given to the form by means of these straight lines. This form can easily be changed into an observatory by placing two of the quarter rings that are

on top as a half ring at the right, and the remaining two as a half ring at the left, making low arched entrances. The next four quarter rings may be laid aside temporarily; two of the larger quarter rings may be placed at the front and two at the back, making large arched entrances, the four quar-



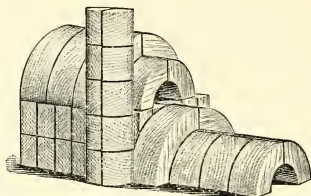
No. 59. Showing a life form made with the Curvilinear Gift, which may be called a light house.



No. 60. Showing a life form made with the Curvilinear Gift, which may be named an observatory.

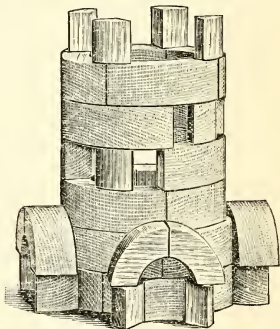
ter cylinders which now stand on top may be placed beneath the four larger quarter rings, each having added to it another quarter cylinder with the flat faces turned out, representing walls; on top of these four walls are placed the four larger quarter rings; the top of the observatory is made by placing two of the remaining smaller quarter rings from back to front and the remaining two from right to left, as is seen in Fig. 60. Or, again, a railway station with a tall clock tower and curved entrance-

track may be made upon the same foundation as seen in Figs. 59 and 61.



No. 61. Showing a life form made with the Curvilinear Gift, which may be named a union depot with clock tower and covered track.

In Fig. 62 we have a suggestion of a tower belonging to a Feudal Castle, (other forms may be seen in Figs. 63 and 64); this leads us at once into the use of this Gift in connection with the Fifth and Sixth Gift by means of which the rest of

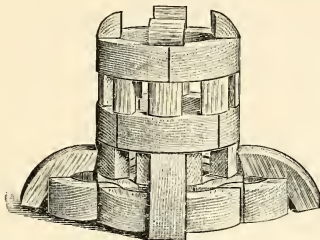


No. 62. Showing life form made with the Curvilinear Gift, which may be named a castle tower.

of the castle may be constructed; thus a higher use of the Gift is shown (see Fig. 73). Building with this Gift brings concave and convex lines into use. When combined with the rectilinear gifts, bridges are made over which may pass people, teams and loaded trains of cars. The arched culvert is also shown, under

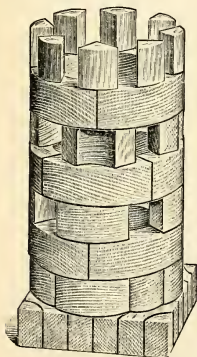


which may flow streams of water or surface cars may speed along, thus suggesting a number of pleasant and profitable talks about bridges and their



No. 63. Showing a life form made with the Curvilinear Gift, which may be named "a music stand in a park."

great value to man in overcoming the obstacles laid in his pathway by rushing streams or yawning chasms.



No. 64. Showing life form made with the Curvilinear Gift, which may be named "a tower to a feudal castle."

In one of our Kindergartens a bridge was constructed. An ambitious young Kindergartner, not waiting to ascertain the contents of her children's minds, exclaimed, "Now let us play a stream of water is running under the bridge". "Water don't go under bridges", replied a child contemptuously. "What does, then"? asked the Kindergartner. "Why, people, of course", said the child. "Bridges are made

to keep the cars from running over people". This showed that the city viaduct was his only idea of the bridge, and it at once suggested much play with conditions familiar to the city child. We give this anecdote by way of caution lest scenes and buildings unfamiliar to the children should be constructed.

The deeper suggestions which arise from the "Bridge thought" may be found in Froebel's Song of the Bridge, of which Susan Blow's motto and translation in the Mother Play Book give an exquisite interpretation of the Bridge.\*

**THE ARCH.** The arch which is readily introduced by forms made with this Gift, plays so important a part in the architect of the world that we cannot forbear quoting at some length from a condensed survey given by Dr. Snider in his "Psychology of the Gifts".

"The arch, though not invented by Rome, was adopted by it as its fundamental constructive form. It is, indeed, a type of Rome, and was so regarded by the Romans themselves, who represented their own spirit in the Triumphal Arch more adequately and originally than in any work of art. The arch, closely wedged together, can bear the burden of a world upon its back. Not so the architrave of a Greek temple, which will break under too great a weight, even under its own weight, unless duly supported beneath. The arch overcanopies space

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\*Some of our readers may possibly be interested in the chapter on the Bridge in "Two Children of the Foothills", as it contains a practical application of the transferred meaning of the word bridge.

indefinitely, and protects what is under it—another suggestion of Rome's spirit in the world's history. But the Greek temple cannot be pushed beyond a certain size; the Parthenon is about the limit. Hadrian's temple of Zeus at Athens exceeds the limit; it was colossal but ugly, showing what Greek art with its moderation became in Roman hands.

“We have already intimated that the Romans were not the first people to employ the arch, but they were the first to realize fully its possibilities. There is no doubt that the Assyrians and the Egyptians had used the arch before even the founding of Rome. In the ruins of the ancient Assyrian palace at Khorsabad, we find a very complete application of the semi-circular arch, going back to the reign of King Sargon in the eighth century, B. C. The Egyptians used the arch for the vaulting of drains and of tombs at least 1000 B. C. The Etruscans, often supposed to be of Oriental descent, knew the arch, and it was doubtless they who built the Cloaca Maxima at Rome, an arched sewer which is still perfect and in use, and whose round mouth can be looked into by the curious tourist, where it opens into the Tiber.

“But the arch, when it rises into the realm of art and becomes truly architectural, seems to demand a setting of right lines; it shows too much of the naked utility to be beautiful in itself. The Roman Triumphal Arch, already alluded to, had to be placed in the framework of Greek column and

cross-beam, the whole taking the shape of a parallelogram in outline.

"Thus the union of the rectilinear and the curvilinear begins to take place at Rome in the days of her glory. She seized upon Greek beauty to adorn Roman strength, and so we often see that the Greek column and entablature at Rome were purely decorative, and not structural. Thereby, however, Greek art became an external matter, an outside ornament put on by the conqueror of the world for self-glorification. Very common in Roman architecture is the conjunction of the arch and wall with the Greek column and entablature; it is the arch and the wall that are doing the work of supporting, while the column (usually the Corinthian in full dress) stands by and looks on, a kind of servant in livery.

"But this external conjunction of the curvilinear and rectilinear of Roman and Greek structural forms, is to become internal, intergrown in an organic unity of the two elements. This is the work of Christianity, which is to unite the Greco-Roman world by an inner bond, which will manifest itself not only in creed and doctrine, but also in buildings, especially in the church, the home of worship and faith. Christian architecture will join the column and the arch in a new marriage, which will assume many shapes. Already the Basilica gives indications which are developed in the Romanesque and the Gothic. Finally the Renaissance will return to

Greece and Rome and re-embody classic architectural forms, yet with the experience of medieval Christendom."

**FORMS OF KNOWLEDGE.** I. The Curvilinear Gift by its horizontal cut gives us two cylinders each two inches high and three inches wide. (See Fig. 57.)

Again by dividing each of these cylinders in the same manner four cylinders are produced, each of which is three inches wide and three quarters of an inch high. (See Fig. 58.)

If three of these cylinders combine there will be two cylinders, one of which is three inches wide and two and one quarter inches high and the other three inches wide and three quarters of an inch high.

II. By the concentric cuts, three cylinders may be shown in succession:

First. The original cylinder three inches high and three inches wide.

Second. By removing the outer rings a cylinder three inches high and two inches wide is made.

Third. By removing the second size rings, a cylinder three inches high and one inch wide is shown.

III. The cylinder which is three inches high and two inches wide may again be divided into two cylinders, each of which is two inches wide and one and a half inches high.

And this may again be sub-divided into four cylinders, each of which is two inches wide and three-quarters of an inch high.

Or the cylinder three inches high and two inches wide may be divided into two cylinders, one of which is two inches wide and two and one-quarter inches high, and the other two inches wide and three-quarters of an inch high.

IV. The cylinder which is three inches high and one inch wide may be divided into two cylinders, each of which is two inches high and one inch wide, or it may be divided into two cylinders, one of which is two and one quarter inches high and one inch wide, and the other three-quarters of an inch high and one inch wide.

Thus we have produced twelve cylinders of varying heights and breadths.

Many more enclosed surfaces are made by combining the quarter circles and the wedge shaped quarters of the small cylinder, but these will not be dwelt upon here as they belong less to the geometric forms than to the forms of beauty, as they suggest buds and leaves.

Out of these space enclosed forms may easily be made the superimposed or monumental forms which illustrate the sameness of shape, the difference in content corresponding to some exercises given in the chapter on the Fifth Gift. It is unnecessary to again call the reader's attention to the fact that when the cylinder is divided from front to back and right to left, according to its axial planes and the curved edges turned towards the center, a cube is made, and we have another striking illustration

of the inner being outer and the outer is made inner, which shows the genetic connection between this Gift and the cube.

**ARITHMETICAL  
FORM.**

In the Third and Fourth Gift fractions are temporarily made by divisions of the whole and these parts of fractions are wholes in themselves and are mererly fractional in their temporary relation of wholes or to larger parts. In the Fifth and Sixth Gifts fractional parts are introduced by subdivision in a few of these integers. In the Curvilinear Gift, however, each division produces a permanent fractional part as the columnar parts made by the two axial cuts are not geometrically complete in themselves but must, however, bear a fractional relation of the cylinder, so, too, half rings and quarter rings represent in the permanent shape, fractional parts of the whole ring, and the ring in its turn is a fractional part of the disk and the disk a fractional part of the whole. Thus is unfolded the social analogy contained in Froebel's Gifts and so frequently referred to by him.\*

The simple relation between the wholes and the parts of the Third Gift suggest primitive society in which the individual is comparatively indepen-

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\*If now the lively appreciation of what has been done to cultivate his inner world by parents and other people fill the soul of the child so that he may feel and find himself at the same time a whole and also a single member of a higher life unity, then will true love and gratitude toward his parents, respect and veneration for age, germinate in the mind of the child. Then will the vivifying anticipation of the lovingly pervading unity and fount of all life blossom in his soul, bear imperishable fruits in his character and be an abiding quality of his action. It would be a sign of the unnaturalness of the child were it otherwise. "Pedagogics of the Kindergarten," page 115, Appleton Edition

dent, being his own servant and master; the Fourth, Fifth and Sixth Gifts suggest more complex relationship in society until at last as we rise in social conventionalities as well as in social insight, we feel more and more that each individual is but a fraction of the social whole as suggested by this Gift.

**THE INFLUENCE OF ART ON CHILDREN.** That children are influenced by music and color is a readily conceded fact, and any one who has been a close observer of them can give innumerable instances of surprising susceptibility.

A fine violinist played one morning in one of our kindergartens "Ave Maria", by Schubert. In a few moments a little boy of four began to sob. The Kindergarten, thinking he was in pain, led him out of the room and then asked him what was the matter. All she could get from him was a sobbing declaration, "I want to go home to my Mamma! I want to go home to my Mamma"! On reaching home, while nestling close in his mother's arms he explained, "There was a man there who played music, and it hurted me so. It hurted me right in here", placing his hand upon his heart.

Miss Lillian Krimbill, the compiler of much fine instrumental music from the Masters, for the use of Kindergarten and Primary Grade Teachers, was asked one fresh spring day to play something for the children on the piano. She selected Mendelssohn's "Spring Song", and after playing it through softly



she turned to the children and said: "What does that music say to you"? One little fellow of five replied, "I don't know but some how I kept thinking while you were playing of that day we went to the woods and gathered violets".

When Millet's picture of the Angelus was first exhibited in America, a Kindergartner purchased a photograph of the same and hung it on her Kindergarten walls. The next morning, of course, the children noticed the new picture and asked at once for a story about it. "Oh"! she replied, "you may tell me a story. Each one of you may look at it carefully and then come and whisper to me what you think the story is". One said one thing and another said another thing, until finally one sensitive little girl put her arms around her teacher's neck and softly whispered, "They are thinking about God, aren't they"? The spirit of the great master had spoken to the child through the picture. Another little boy, while in Europe, selected, entirely unprompted by his mother, Murillo's picture of the Central Figure of the Holy Family, because he said it reminded him of the story of the Christ child. If time permitted, many more illustrations could be given showing that true art does appeal even to a childish heart. But it must at the same time be simple art. Many of the subtle, complex compositions of music such as Brahms's Symphonies and Tschaikowsky's compositions are far beyond any child. An earnest worker in Social Settlement

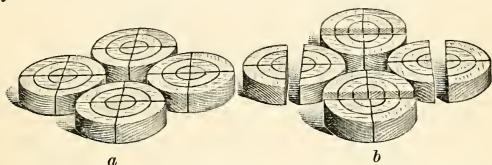
work found that many beautiful pictures sent to her for distribution were much beyond the childish comprehension of her adult neighbors, but that they always enjoyed fresh landscapes, pictures of flowers and some of the simpler masterpieces of religious subjects. We speak of the distinction between a simple masterpiece and a complex one that the value of the elementary curved line of the circle may be seen. It is simple and yet it is beautiful. For out of it may be made the undulating line of the waves of the sea, the rhythm of which appeals strongly but mystically to every heart. Or by enclosing space with three half rings the trefoil so much used in architecture may be made. Or with four half rings the quartrefoil may be made. By joining the smaller sized half ring to the larger, we get the beautiful curve of the spiral, and by joining first a quarter of the cylinder and the half of the cylinder we get that inward curve seen on a snail shell or of the fern leaf. If to such a curved line as this is added a similar curved line reversed we have the simple scroll so familiar in all decorative art. If now to the larger ring we add a half circle made from the smaller ring, and to this again add the half cylinder still curving inward we have a more beautiful though more complex spiral. All sorts of variations of these curved and double curved lines resembling flowers, leaves and vines may be produced by combinations of parts of this gift. The advantage which it has for such decorative work

over and above the rings and half rings of the linear gift is that it adds the element of depth, and thus gives the effect of bas-relief so attractive in the ornamental side of architecture.

# FORMS OF BEAUTY.

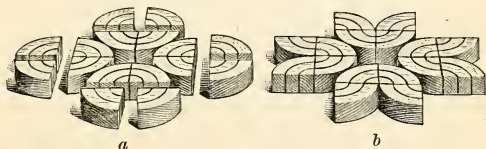
When we come to the "Forms of Beauty" we see at once the great addition which the curved line gives to the child's work.

Place, for example, four disks so that they touch by a curved surface, leaving a hollow space in the



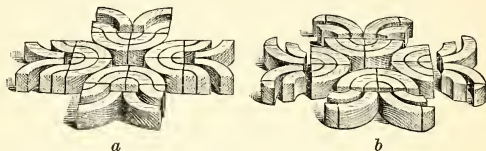
No. 65. Showing fundamental and first move of a "beauty sequence" made with the Curvilinear Gift.

middle; the dividing lines of these disks extending from front to back and from left to right. (See Fig. 65*a*.) Now draw the outside halves of each of these disks out one-half an inch. (See Fig. 65*b*.) Divide these half disks into quarters. (See Fig. 66*a*.) Reverse the position of these quarter disks,



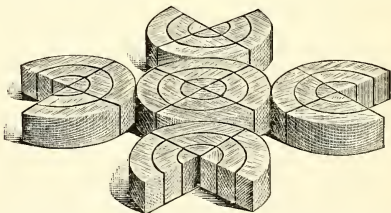
No. 66. Showing second and third moves in the "beauty sequence" begun in No. 65.

connecting their curved lines with the half disks which are at the center, thus reversing the direction of the curves of the four central halves, and there appears the bud, as it were, of an Egyptian lily.



No. 67. Showing last two moves in the "beauty sequence" begun in No. 65.

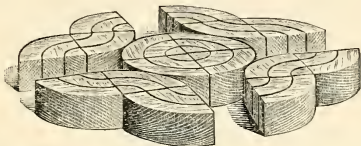
(See Fig. 66*b*.) From the quarter disks in this position draw out one quarter of an inch the large quarter rings, letting them come slightly more toward each other, and the beginning of the unfolding of the bud is seen. (See Fig. 67*a*). Next draw



No. 68. Showing fundamental of a "beauty sequence" made with the Curvilinear.

out second sized rings one-quarter of an inch, and place the quarter cylinder (which touch these second sized quarter rings), at the ends of the large rings, and the unfolding of the petals is suggested. If the

whole now be pushed back against the half disks, which are at the center, an exceedingly attractive figure resembling fern leaves presents itself.



No. 69. Showing first move from fundamental for "beauty sequence" shown in No. 68.

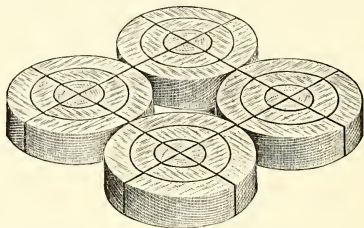
A first form and one move in another "beauty sequence" are shown in Figs. 68 and 69. Also a fundamental giving results quite different from the preceding forms is given in Fig. 70.

**THE CURVILINEAR GIFT AND SIXTH GIFT COMBINED IN LIFE FORMS.** We give on pages 219, 220, illustrations of forms made by combinations of the Curvilinear Gift with the Sixth Gift. (See Figs. 71, 72, 73.)

In many ways not mentioned here, the child by means of this Gift becomes so familiar with the curved line, and the combination of curved and straight lines that he is ready for the transference of these words to their spiritual meaning.

"Language recalls and perpetuates the spiritual analogy between these two kinds of lines, which are specially applicable to all sorts of conduct and action. We may say that the right line represents justice and the unswerving law; the right line is right (rectum and recht). The right line means

*straight forwardness* in English, *rectitudo* in Latin, *Gerechtigkeit* in German. There can be no doubt that the rectilinear cultivates as well as expresses these elements of character in the human being. Hence it has its place in education, and specially in the education of the child, who being at the start



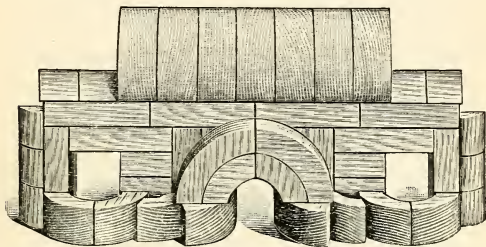
No. 70. Showing fundamental for a beauty form made with the Curvilinear Gift.

the possibility of all lines, must be straightened out, or put into a straight line in the beginning of his career.

But these very utterances about the rectilinear as educative indicate its limitation, and there rises the inner protest, and the demand for the opposite. The curvilinear has yielding, conciliation, forgiveness; it has mercy, in contact with the unbending justice of the rectilinear. The curve bends, relents, turns back, repents; it is placable. Achilles in his wrath was rectilinear and in one point right; in his reconciliation he was curvilinear, and in all points right. To be sure, the bending or curved element in man's nature has its limitations also, sometimes he must

not yield. Thus he must have both, the rectilinear and the curvilinear, in harmony.

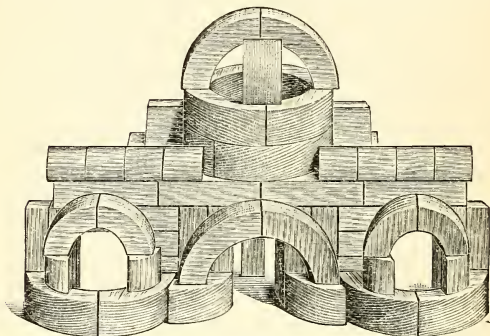
Human speech has thus seized upon these two kinds of lines to express conduct, especially ethical conduct. And as external objects, they still remain educative. In the Greek world stoical morality was rectilinear, epicurean curvilinear; both in the end were carried to excess. The Ethics of Kant are more rectilinear, often too much so; the



No. 71. Showing first life form in sequence with the Sixth and the Curvilinear Gift combined.

Ethics of Bentham more curvilinear, often too much so. It may be said that Northern Europe, the Teutonic peoples, have in general a tendency toward the rectilinear in manners, art, literature, morals, and perchance religion. On the other hand Southern Europe of to-day, the Romanic peoples, have a decided leaning toward the curvilinear, which shows itself in their outer behavior as well as in their spiritual productions. Froebel himself was distinguished for his directness (*Gradheit*, straightness),

and his spirit was more rectilinear than curvilinear. This innate bent was cultivated by his study of crystallography, which shows nature in her rectilinear mood, shooting into right lines, and also by his study of architecture, which in his time was mainly that of the Greco-German renaissance, and largely rectilinear. Of course his mathematical studies,



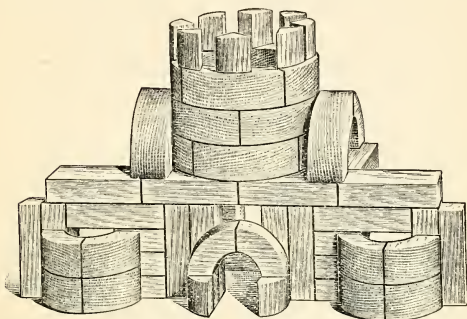
No. 72. Showing second life form in sequence with the Sixth Gift and Curvilinear combined.

surveying, geometry, etc., helped along in the same direction. Thus we may see why his Gifts are so dominantly rectilinear.

Accordingly we hold that these two kinds of lines, furnishing as they do the staple of human speech in regard to matters right and wrong, and having their analogy not only to the moral but also to the intellectual nature of man, are deeply educative; nay they have helped to educate the human



race, and must still help to educate the child, who has, in general, to travel the same road of discipline that his species has traveled. He gets the very



No. 73. Showing third life form in sequence with Sixth and Curvilinear Gifts combined.

basis of all moral distinctions in speech from the line, which distinctions are re-created by the child in play."

**THE TRANSFERRED  
MEANING OF  
STRAIGHT  
AND CROOKED.**

The symbolic use of straight and crooked has furnished man with strong figures of speech by means of which to describe right and wrong moral conduct. Froebel refers to the value of this distinction between straight in his little nursery song of "The Fishes", but does not refer to the curved line which seems to be a mediation as it were between the rigid and the sometimes hard, straight line and the decidedly ugly and discordant crooked line.

Just as graciousness and tact sometimes descend into policy and deceitfulness, so, too, the curved line may easily become the weak, wavering line. This danger is avoided with the young child by keeping strictly to the curved combinations which may be made from half and quarter lines of the circle, which is always vigorous and definite, though bending at every point.\*

**GEOMETRY** We cannot, perhaps, better close  
**AND ETHICS.** this inadequate survey of the Kindergarten Gifts of concrete magnitude, than by giving a forecast of the Gifts of Abstract magnitude, which are a necessary and logical outcome of these Gifts, and we therefore close this book with a quotation from Dr. Snider's most interesting and valuable contribution to Kindergarten literature.

"Geometry is a continuous evolution unfolding along with the race. From indications of the monuments, the Egyptians proved the so-called Pythagorean proposition by means of square blocks or tablets—a method which the kindergartner to-day uses or can use with her children. It may be interesting to note, in regard to this proposition, that the two kinds of proof are the sensuous and the abstract, the latter being purely geometric, and yet derived from the former. The kindergarten in the person of the child, goes back to the race's be-

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\*This is the value of Miss Glidden's Circular Cutting, every line in it is strong and well defined, and yet every line is curved.

ginning, and re-embodies the abstraction in its primordial concrete shape. (This Pythagorean proposition is the well-known one: The square of the hypotenuse equals the sum of the squares of the other two sides.)

Here, then, we can observe the process which is the characteristic and life-giving movement of the Gifts of Abstract Magnitude; first is the material world as taken up by the senses in all its fullness and immediacy; second is the separation or the abstraction of these fundamental geometric forms, the Surface, the Line, the Point; third is the return of these forms to the sense-world, in which they are re-embodied for the child. Such is the threefold act of mind (the Psychosis), which lies at the basis of these Gifts of Abstract Magnitude, and gives to them their fundamental distinction, organizing them in accord with the movement of the child's Ego itself.

It will be worth while to note the same process in other fields of man's spiritual activity. Let us watch it in Ethics. First is the concrete act, let us say, of the just man; second is the abstraction of the essence of the act, and then the giving it a name, justice, which is no longer individual, but universal; third is the re-embodiment of this abstract concept in the conduct of men, which is the return to the first stage. But what is gained by this procedure? That which belonged to the one, now belongs or may belong to all; not one man alone is to be just,

but all men are to participate in justice, which thus becomes a virtue and is impartable, teachable. So it is with the other virtues, which are abstractions from real life in the first place; the brave, the temperate, the wise, the good man calls forth courage, temperance, wisdom, goodness, and, moreover, starts the science of Ethics, whose function is to impart these virtues to all, so that every human being can re-incarnate them in his own life.

It was, therefore, the grandest epoch in the moral history of man, when he began to separate virtue from its immediate, instinctive unity in conduct and to look at it abstractly, as it is in itself. The grandest epoch, we say, for that which hitherto had been the virtuous property of one hero, or of one good man, began to be the property of all, universal, just through this might of abstraction. Specially the time of the old Greek Philosophers was such an epoch, the culmination of which was reached in Socrates, and he transmitted the work to the thinkers who came after him, and who organized ethical science substantially as it exists to-day.

Of interest to us in the present connection is the fact that these same Greek thinkers at the same time were developing the science of Geometry, which is an abstraction from the sense-world primarily in order to get possession of the same. In like manner the science of Ethics is an abstraction from the immediate sensuous deed in order to find out the true nature thereof and then to control the

same. Both sciences have, therefore, a common character and often have had promoters in common. Pythagoras, also a moralist, is said to have sacrificed a hecatomb in his joy and thanksgiving to the Gods when he discovered the geometric proposition which goes still by his name. Plato's love of Geometry is celebrated in his works, and he is said to have made it a kind of examination test for entrance to his Academy. It, indeed, tallies with his love of the Ethical and of the Ideal generally, which insisted so strongly upon the subordination of the sensuous and material elements in man and nature.

And here it ought to be noticed that the re-embodiment of the Ethical in the concrete form of life is likewise a part of the work of the kindergarten. The story, the fairy-tale, the fable, is a kind of reincarnation of some good, or some virtue which the child cannot take in its abstract form. The great end of the story, indeed of all education, is the moral one, and unless the story has a moral content, it is not educative. To be sure, we are not to moralize to children, or at least very little; to moralize is to present in abstract form that which the story ought to give in concrete. To introduce moralizing into the story is, therefore, a kind of perversion, which the child himself often resents. But we must not infer from this, as some have done, that the story is to have no moral content. It ought to have always, still this moral content is to be completely incarnated for the child, though the kinder-

gartner herself should know the abstract meaning. Indeed, it is through such knowledge that she can rightly choose her stories, rejecting those which are not educative or imperfectly so, and selecting those which she not only feels but sees to be genuinely ethical, and also in a form which goes home to the child.

So we bring to light the harmony between the ethical and the geometrical in the kindergarten of to-day, which harmony, however, was strongly brought out long ago by the ancient Greek sages. Note again that the Surface, Line, and Point do not exist in nature, but are abstractions made by the mind from the concrete object, and hence an ideal, pure product of the brain. Now the science of these ideal forms of Matter or of Space is Geometry, which is, therefore, a great trainer of the spirit in the work of freeing itself from sensuous dependence on the material world, creating its own pure forms, and hence so praised by Plato as a discipline, both philosophical and ethical.

But the sciences of Ethics and Geometry in their abstract shape correspond to the needs of the more mature or more developed mind. We must repeat, that for the child they must be re-embodied, which work is specially Froebel's. And a mighty work it is!"

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